Australian Consumers' Association

January 1996

CHOICE

Cool, creamy and full of bacteria

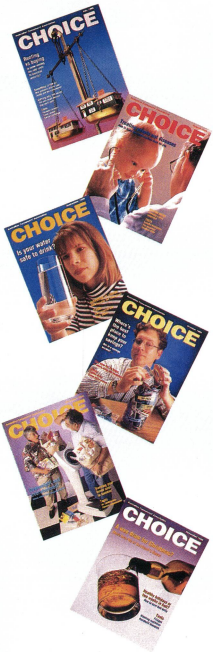
How safe is soft-serve ice cream?

Termite attack!

They're alive and well and living under the house, but most inspectors missed them

Tests

Digital mobile phones
Cassette decks
Windows 95



About the Consumers' Association

The Australian Consumers' Association is a non-profit, non-party-political organisation established in 1959 to provide consumers with information and advice on goods, services, health and personal finances, and to help maintain and enhance the quality of life for consumers.

We are completely independent. We buy all the products we test on the open market. We are not beholden to any commercial, government or union interests, and we don't accept advertising, paid or unpaid. Our income is derived from the sale of CHOICE and our other publications and products.

We test and rate products and services. Our CHOICE ratings are usually based on quality without regard to price, and are derived from lab tests, expert judgments and reader surveys. If a product is high in quality and relatively low in price, we deem it a Best Buy. A rating applies only to the brand and model tested, not to other models sold under the same brand name, unless so noted. We can't conduct special tests or provide information about tested products beyond what appears in CHOICE.

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We represent and act in consumers' interests. We lobby and campaign on behalf of consumers to promote consumers' rights, to influence government policy, and to ensure consumer issues have a high profile in the public arena.

Membership. Subscribers can become voting members of the Consumers' Association on application. Membership costs $75 per year, which covers your subscription to CHOICE plus a further subscription to our policy magazine, *Consuming Interest*.

About CHOICE

CHOICE is published monthly by the Australian Consumers' Association.

Subscription rates. $48 for one year, $89 for two years; institutions $66 per year.

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Other Consumers' Association products

CHOICE Books publishes non-fiction titles on a wide range of topics, with a consumer perspective.

Consumer Bookshelf offers both CHOICE Books and material from other publishers for sale by mail order.

CHOICEFax supplies faxed copies of many CHOICE articles for $6 per article to subscribers, $16 to non-subscribers. Call (02) 558 8088 to order an article, using your credit card details.

Test Research provides fee-for-service testing of consumer products for other consumer organisations, government and industry. Contact Jeanette Dwyer on (02) 559 9801.

Consuming Interest, our quarterly campaigning magazine, is published in February, May, August and November. It provides straight facts, probing analysis, in-depth reporting, informed opinion and stimulating debates. It also gives updates on the lobbying and campaign projects of the Consumers' Association.

CHOICE Travel. This magazine is produced by the UK Consumers' Association and reprinted by CHOICE four times a year. Its reports are independent in the same style as CHOICE and, while they're written from the perspective of a European base, most of the information in them is just as useful to travelling Australians.

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Cover photo: Kent Mears

In the next three issues

Tests: Microwave ovens, electric wall ovens, multi-disc CD players, answering machines, window locks, TVs, gas heaters, laundry detergents.
Reports: Using the hospital system, smart cards, making a will, new surgical techniques, pay TV vs free-to-air, house and contents insurance, bottled water, choosing a lawyer, home security, genetic engineering in food, car reliability survey results, buying a new bathroom, superannuation, carpet cleaning methods, toothpaste.

We try to bring you tests and reports in the planned month, but sometimes have to move an article because of problems that occur during testing and research, or for lack of space in a particular issue. We apologise if this causes any inconvenience.

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Nutrition

SOLUBLE CEREAL

THERE HAS BEEN much hype in recent years about the benefits of soluble fibre in reducing cholesterol levels. And with it have come several new breakfast cereals high in soluble-fibre-rich oat bran, barley bran or rice bran.

Another such cereal has hit the market — **KELLOGG'S Guardian**. It's high in soluble fibre from psyllium. It's also low in salt and fat, and while its sugar levels could be better, they're not especially high.

So as a cereal it's not bad. What concerns us, however, is the marketing. The **Guardian** box features hearts (including heart-shaped strawberries), cardiographs, the logo "every heart needs a guardian" and the assurance that as part of a low-fat diet, **Guardian** helps you manage cholesterol. All this could suggest **Guardian** will protect your heart from illness.

Under our current laws, as in many other countries, a food company isn't allowed to make any form of health or therapeutic claim in relation to its product.

Kellogg's was recently fined by the NSW Health Department for making claims in advertising for its **All-Bran** cereal, which stated the benefits of fibre in preventing bowel cancer.

Australian legislation on health claims is now under review, promising some interesting debate between the food industry, health experts and consumer advocates including CHOICE.

Unsurprisingly, Kellogg's believes the current laws are too stringent, and should be altered.

Nevertheless, as a result of being fined, Kellogg's has reviewed the packaging on all its products, and decided both **All-Bran's** and **Guardian's** need changing — which it says will be done in the next few months.

This doesn't mean you should avoid buying **Guardian** if you enjoy it — soluble fibre is an important part of the diet.

Just keep in mind that you need to consider other sources of soluble fibre such as pears, prunes, grapefruit, oranges, dates, apples and bananas. Kidney beans and the like are all high in soluble fibre too, as are broccoli, eggplant and sweet corn.

Do hearts amount to a health claim? The regulations for health claims on food labelling are under review.

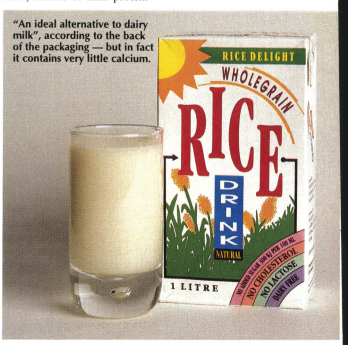
RICE 'MILK'

FOR MANY YEARS now soy drink has been available for people who are allergic to dairy milk, or simply don't like it.

Now there's another option: **PUREHARVEST Rice Drink**, available in many supermarkets. Made from wholegrain brown rice, sunflower oil, salt and filtered water, the company promotes it as an alternative to dairy milk.

Although it contains no cholesterol, lactose or milk protein — which are reasons why some people don't drink milk — **PUREHARVEST Rice Drink**, like many soy drinks, has very little calcium. Milk is an important source of calcium in many people's diets. So while **Rice Drink** *is* an alternative to dairy milk, you'll need to supplement your diet with another source of calcium. **PUREHARVEST** should make this clear on the label.

"An ideal alternative to dairy milk", according to the back of the packaging — but in fact it contains very little calcium.



Volunteers wanted

'FRIENDS, SYDNEYSIDERS, COUNTRYMEN, LEND US YOUR EYES!'

THIS IS THE CRY of the Cooperative Research Centre for Eye Research and Technology (CRCERT), which is looking for Sydney-based volunteers to take part in trials of new soft contact lenses developed in association with the Centre.

Volunteers receive their optometric care, lenses and solutions free of charge during the study, and receive a free eye examination during screening.

To become involved you need to be aged between 18 and 39, but it doesn't matter whether you wear contact lenses already, or only glasses. You also need to be able to attend the CRCERT Clinic, which is at the University of New South Wales' Randwick campus.

If you are interested in being part of the study, or would like further information, please phone the Centre on (02) 385 0500.

Tax facts

SETTING YOUR RECORDS STRAIGHT

DO YOU OWN property that might be subject to capital gains tax? If so, you need to keep detailed records.

In its simplest form, capital gains tax (CGT) is a tax on the profit you make when selling certain things. Your house (if you live in it) and your car are exempt, but most other things aren't unless they were acquired before September 20, 1985.

Investment property, shares in a company or units in a unit trust, personal belongings worth more than $5000 (for example, furniture or a boat), or any collectible assets which cost more than $100 (like works of art, jewellery and antiques) usually attract capital gains tax. The law is being amended to increase the above amounts to $10,000 and $500 respectively, but hadn't been passed by Parliament when we went to press.

Legally you must keep comprehensive records for assets which are subject to CGT. And you must keep them for five years after you sell the asset. Details you need to keep track of include:

- The date you bought (or were given) the asset.
- The price you paid or its value if it was a gift.
- Anything extra you had to pay to get the asset (for example, legal, brokerage and other fees, agent's commission or stamp duty).
- Any amounts you have spent on the asset (for example, if you build a house on land, or make extensions to an existing building, you must keep records of what you spent). These costs may be able to be used to reduce your CGT bill.
- If you own shares, bonus issues of shares or dividend reinvestment plans will increase the value of your asset — in these situations the calculation of tax liability can be complicated, so ensure you keep accurate and detailed records.
- The date of sale of the asset, and the amount you were paid for it or the date you gave it away.

There's a flat fine of $3000 for not keeping proper records. And records may save you from paying too much tax, or too little — which can cause problems in the future.

Your nearest Tax Office can send you a booklet called *Capital Gains Tax — What You Need to Know*, which includes a form for your records. It also has other booklets which discuss how capital gains tax affects deceased estates, your home, disposal of assets after divorce, and investing in shares and unit trusts.

Phone hassles

FAULTY PHONECARDS

EVERY YEAR Telstra issues millions of Phonecards, and with so many around it's inevitable the odd faulty one will turn up. The problem is: how do you get it replaced?

One consumer wrote to us complaining how complicated it was for him to exchange his faulty card. When he returned it to where he bought it, the newsagent declined to replace it and told him he would have to complain to Telstra — which he did, and the card was eventually replaced.

However, Telstra says this is not the norm. Vendors are supposed to give customers with faulty cards a special form (and a reply-paid envelope) which should be filled in and sent back with the faulty card. Telstra then checks the card and replaces it.

If the card has never been used, the vendor may decide to replace it on the spot and claim the cost back from Telstra — but they're not obliged to do so.

Another alternative is to ring the Telstra Freecall number on the card and ask for the closest Telstra shop. There, you can have the card replaced immediately.

Correction

WEIGHT LOSS PROGRAMS

CHOICE, November 1995

On page 9 we reported that only **JENNY CRAIG**, **GLORIA MARSHALL**, **HERBALIFE** and **MEDITRIM** have signed on to the Weight Management Code of Practice. This was incorrect and should have included **WEIGHT WATCHERS** rather than **HERBALIFE**.

WEIGHT WATCHERS is a signatory to the Code, and was also a key player in its development. The Code is designed as a guide for the conduct of the weight management industry and the protection of consumers' rights.

HERBALIFE was involved in developing the Code, but is not a signatory.

HELD TO ACCOUNT

CHOICE, October 1995

In *The bottom line*, on page 11, for the building society and credit union calculations, we only included the cost of four cheques a month rather than six as described, for our typical customers "John and Julie". This meant we underestimated the charges on the accounts from CPS Credit Union (ACT), CPS Credit Union (SA) and Home Building Society by $2.40 per year for this scenario.

For more information on how we calculated bank cheque charges, see *Update*, right.

Update

WHEN A 'BANK' CHEQUE DOESN'T COME FROM A BANK

Since our article on savings accounts in the October issue of CHOICE, some subscribers have asked us why we included a flat charge of $6 per bank cheque for all building societies and credit unions, when many have a different charge (or in some cases no charge at all).

The CHOICE survey looked at accounts with a personal cheque facility, so we considered that people would only need to use a 'bank' cheque in special circumstances — when a personal cheque just wouldn't do.

In the case of building societies and credit unions, the 'building society cheques' or 'credit union cheques' they provide aren't generally considered to be of the same status as 'bank cheques'. In fact, in some instances their cheques (like personal cheques) simply won't suffice — many solicitors won't accept them, for example. Whether this practice is justified or not is another matter — but it is widespread.

In these circumstances you would need to go to a bank and get a bank cheque. Many building societies and credit unions are linked in one way or another to banks, and will arrange a bank cheque for you, but you don't have to use these particular banks when you want a bank cheque. You can simply go to any bank, whether you are a customer or not (although the cheque may cost more if you're not). So, rather than assume a different bank cheque for each building society and credit union, we used an average figure of $6 per bank cheque in these cases. This figure is the charge for a Westpac cheque, which is widely available.

Is soft serve a safe serve?

It may be just the thing to hit the spot on a hot summer's day, but our tests uncover a huge amount of bacteria lurking in soft-serve ice cream — more than half of the samples we tested had unacceptably high levels.

The poor quality of most soft serve makes it a potential health hazard — especially for children.

SOFT SERVE IS JUST THE TYPE OF food that bacteria thrive on — not only because it contains milk, but because it spends part of its life in a machine where, if given half a chance, the bacteria can get quite comfortable in the various crevices, tubes and reservoirs.

Concern about the quality of soft-serve products led the health departments in Western Australia and Queensland to investigate the matter. Both surveys found a significant proportion of soft-serve products are of poor or substandard quality.

This prompted us to see for ourselves what unpleasant surprises might be lurking beneath that smooth, creamy exterior.

We analysed 86 samples of soft serve from numerous outlets in Melbourne and Sydney. These ranged from fast-food chains to mobile vans.

What is soft serve?

Soft-serve ice cream is frozen and aerated in a machine, and swirled into the cone before your eyes. Some soft serve is real ice cream (either regular or reduced-fat), some looks just like ice cream but contains vegetable fat instead of milk fat (dairy-based ice confection). Other products served this way are Vitari and frozen yoghurt. Our report starting on page 8 gives more details of the various types of 'ice cream'.

BUYER BEWARE

Forty-nine of the 86 samples tested had unacceptably high levels of bacteria. Most of these were unacceptable because they had either too many bacteria in general (a high standard plate count), or a large number of a particular group of bacteria which can indicate poor hygiene. Some had both problems.

One sample contained *Listeria monocytogenes*. These bacteria are particularly dangerous for pregnant women as they can cause miscarriage. Young children and the elderly are also at risk. Another sample contained a type of staphylococcal bacteria which can give you food poisoning.

See *Micro talk*, right, for an explanation of the different types of bacteria we looked for.

THE BEST PLACES TO BUY

The overall picture is pretty dismal. The quality of soft serve from most chains and independent shops we checked is poor, with the exception of McDONALD'S. However, not even all their samples got the thumbs up. See the chart on the right for more information.

DONUT KING and MR WHIPPY had a particularly poor result — we couldn't rate any of their samples as acceptable. The majority of samples from mobile vans, temporary stalls, milk bars, corner shops and shopping malls were also unacceptable. The notes next to the chart explain how we arrived at the ratings.

A POTENTIAL HEALTH HAZARD

The results of our test, together with the findings of the health departments' studies, show soft serve is generally of poor hygienic quality. It's impossible to be sure it's safe to eat — high levels of bacteria indicate unsatisfactory standards of processing or handling. Such a poor-quality product is a potential health hazard, so we can't recommend it, especially for children.

What we found

WHAT TO DO?

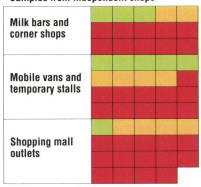
Unfortunately, there isn't much you can do about the poor quality of soft serve, except choose not to buy it. However, the retailers can lift their game.

There are a number of critical steps they must take, including taking care with personal hygiene, preparing only enough soft-serve mix for each day's use, storing all prepared batches at less than 5°C, *never* leaving mix in the machine overnight and *always* cleaning and sterilising all parts of the machine every day.

We informed the chain retailers of what we found. They all said they were very concerned about samples with high counts of bacteria, and said they would address the problem with the outlets involved. Hopefully this is a step in the right direction — let's hope the quality of soft serve, at least in the chains, improves as a result.

Samples from fast food chains

Samples from independent shops



TESTING NOTES

A total of 86 samples was purchased — all from different outlets of the chains or shops. Each box on the chart represents ice cream bought from one outlet.

Acceptable samples

Samples were considered to be of acceptable microbiological quality if they met the following criteria:

- No more than 10 *E. coli* per gram.
- No *Listeria* in 25 grams.
- No more than 200 per gram of a type of *Staphylococcus* that can cause food poisoning.
- A standard plate count (SPC) of less than 50,000 bacteria per gram of ice cream.
- Less than 100 *Enterobacteriaceae* per gram of ice cream.

Borderline samples

Samples in this category fitted all the criteria for 'acceptable' except for having an SPC of between 50,000 and 250,000, or more than 100 but less than 1000 *Enterobacteriaceae* per gram.

Unacceptable samples

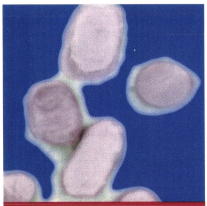
These are samples that fail any one or more of the first three 'acceptable' criteria and/or the 'borderline' SPC or *Enterobacteriaceae* criteria. An unacceptable sample is of poor hygienic quality and is a potential health hazard.

Roughly half of the samples were from Melbourne and half from Sydney. However, all of the **MR WHIPPY** samples were bought in Sydney, as the chain is only just starting up in Melbourne.

Micro talk

To tell us about how 'clean' or 'dirty' soft-serve ice cream is we had microbiologists count what the human eye can't see — bacteria. They looked at:

- **Standard plate count (SPC):** A count of all the bacteria present in the sample, it's a measure of the general hygienic quality of the product. We consider more than 250,000 bacteria in a gram of soft serve unacceptable. Although this amount of bacteria doesn't automatically mean you'll get sick, it's a warning of poor hygiene practices or that the product has begun to go off. We found counts as high as two million per gram.
- **Enterobacteriaceae:** This group of bacteria is a measure of how well the product was treated in the factory (for example by pasteurisation) as well as general hygiene throughout its life. We consider more than 1000 per gram unacceptable; it could cause food poisoning.
- **E. coli:** The presence of this bacteria can mean faecal contamination (usually due to poor personal hygiene — a food handler not washing their hands after visiting the toilet is a classic example). We consider more than 10 *E. coli* per gram of soft serve unacceptable.
- **Staphylococcus:** We tested for coagulase-positive *Staphylococcus*, which can cause food poisoning. Its presence indicates poor handling practices. The main source of contamination is from people — cuts, boils, pimples, sneezes and runny noses. We consider a count of more than 200 per gram of soft serve unacceptable.
- **Listeria:** Its presence is most likely to mean ineffective cleaning of equipment. The presence of a certain type — *Listeria monocytogenes* — is particularly serious; it's dangerous to pregnant women as it can cause miscarriage. We consider any *Listeria* in soft serve to be unacceptable.



E. coli bacteria — they indicate the soft serve has been handled unhygienically.

Ice cream

When is ice cream not ice cream? When it's ice confection or frozen confection, that's when. We take a look at what's what and sort out the light from the not so light.

EATING ICE CREAM IS A SERIOUS business — Australians shovel down around 330 million litres of ice cream and similar products each year, and about two thirds are in take-home tubs. For a family of four, that's about 25 two-litre tubs a year. But exactly which tub is best to take home?

The 'ice cream' section of the freezer has expanded dramatically in recent years and choosing what to buy can be a mind-boggling, not to mention finger-numbing, experience.

There's reduced-fat this and light that, premium this and super-premium that, frozen confection, ice confection, frozen tofu, gelato — what does it all mean, and which are the best choices? Here's the CHOICE quick guide to sorting out what's what.

WATCHING YOUR WEIGHT

If you're concerned about your weight the main things to watch are your fa and energy intake. Super-premium an premium ice cream are very high in both so watch out — a whole tub of some thing that good may simply be toc tempting to know when to stop!

A scoop of regular ice cream every now and then won't put your diet out of whack, but if you eat ice cream regularly choose a low-fat variety.

■ *Best choices*: Gelato, low-fat ice cream Vitari.

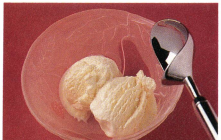
WATCHING YOUR CHOLESTEROL LEVEL?

If you're concerned about heart disease, it's not necessarily the amount of cholesterol in foods that's most important, but the amount of fat, particularly saturated fat. So don't be fooled by products that claim to be 'low cholesterol' or 'polyunsaturated', as they may not be low in fat. For example, **OAK Classic low-cholesterol frozen dessert** has 4.5 g of fat in a serve — that's more than most of the reduced-fat ice creams we looked at.

Products which use claims such as 'low cholesterol' or 'low in saturated fat' must have nutrition panels, so read them carefully and compare the fat levels

Ice creams

To use the description 'ice cream' a product has to be made from milk, cream or milk products (skim milk, whey, buttermilk). All the fat must be milk fat.



Most ice cream labels with nutrition panels give information for 100 mL of product. That's two scoops, or a little less than half a cup.

PREMIUM ICE CREAM

'Premium' on a label can mean a number of different things, because it isn't defined by the food regulations. However, it usually means high-quality or natural ingredients (for example, fresh cream or egg yolks). Premium ice creams usually contain about the same amount of air as regular ice cream but a little more fat.

■ *Typical nutrient content (per 2 scoops):* 110 calories; 6 g fat; 11 g sugar.

SUPER-PREMIUM ICE CREAM

The food regulations don't say exactly what 'super-premium' must mean. However, it usually has high-quality ingredients and it's dense and rich because it has lots of fat (as much as 16% by weight) and not much air. Some super-premiums are more dense than others, so they have more fat and calories in a serve. For this reason we've included a range of nutrient contents.

■ *Typical nutrient content (per 2 scoops):* 155–265 calories; 10–15.5 g fat; 14–28 g sugar.

with other products before deciding.

■ *Best choices*: Gelato, low-fat ice cream, Vitari, low-fat frozen yoghurt, low-fat tofu ice confections, low or reduced-fat (light) ice confections.

CHOICES FOR PEOPLE WITH DIABETES

Most people with diabetes follow a pattern of healthy eating similar to that given in the Australian Dietary Guidelines. As most people with diabetes are overweight and at risk of heart disease, avoiding foods high in fat is important. Reducing your sugar intake is helpful too. You should stick to whatever advice your dietitian has given you.

Some products may sound particularly appealing to people with diabetes, but they can be unsuitable. For example, **PETERS Carbohydrate-modified** vanilla ice cream. It sounds good — and there's no sugar in the ingredient list — but it contains sorbitol (which has a laxative effect, the same energy value as sugar, and will also raise blood sugar levels), and it's pretty similar to regular ice cream in fat and calories.

■ *Best choices:* Ice creams and confections artificially sweetened and low in fat (such as **DAIRY BELL Lite**), low-fat ice creams, Vitari.

ALWAYS LOOK ON THE LIGHT SIDE

Beware the marketing hype when you're looking for the healthiest option. Nearly every reduced or low-fat ice cream we looked at had 'light' splashed across it somewhere. All 'light' products are lower in fat than their regular counterparts, but they are not all as 'light' as each other. We found 'light' products with fat contents as high as 6 g or as low as 0.5 g or less per serve.

The National Food Authority (which sets food standards) and the food industry think this is perfectly OK. Their voluntary code of practice says that light can mean low in fat, or just reduced-fat. But the double meaning leaves consumers none the wiser — you need to compare the nutrition panels to get the real story.

See the table on page 11 for a brand comparison of products with healthy-sounding claims.

Can percentages lie?

You can be forgiven for thinking that two ice creams with 6.5% fat are the same — but it ain't necessarily so. The regulations set limits on the amount of fat that reduced and low-fat ice cream can have in each 100 g. For reduced-fat ice cream, for example, this means that it can't contain more than 6.5 g in 100 g (or 6.5% by weight). But a serve of ice cream is generally considered to be 100 mL (a volume, not a weight), which, because of all the air whipped into it, normally only weighs about 50 g. So a reduced-fat ice cream with 6.5% fat by weight would have about 3 g of fat per 100 mL serve.

However, this is where something like **SARA LEE Classic Light** upsets the equation — it doesn't contain any more than 6.5% fat by weight, so can be described as 'reduced-fat', but it's so dense (about 90 g per serve) it has twice as much fat in each 100 mL serve as its reduced-fat friends. In fact, it's even got more fat in a serve than regular ice cream. So is it really lower in fat than anything? Only in comparison to the high-fat super-premiums like **SARA LEE Classic**.

REGULAR ICE CREAM

Regular ice cream has at least 10% fat by weight but can have different amounts of air whipped into it to create different textures. Sugars, flavours, colours and other additives may also be used.

■ *Typical nutrient content (per 2 scoops):* 85 calories; 5 g fat; 9 g sugar.

REDUCED-FAT ICE CREAM

These ice creams have similar ingredients to regular ice cream, but less fat (no more than 6.5% by weight).

■ *Typical nutrient content (per 2 scoops):* 70 calories; 3 g fat; 9 g sugar.

LOW-FAT ICE CREAM

Low-fat doesn't mean no-fat. These ice creams have similar ingredients to regular ice cream, but no more than 4% fat by weight.

■ *Typical nutrient content (per 2 scoops):* 60 calories; 1 g fat; 10 g sugar.

Ice confections and frozen yoghurt

Anything other than ice cream or frozen yoghurt is an ice confection. Some ice confections contain little or no fat, while others have the same level as regular ice cream. All the following categories (except frozen yoghurt) are types of ice confection.

DAIRY-BASED ICE CONFECTION

This contains milk solids (skim milk or powder), but not milk fat. Some use saturated fats (palm or coconut oil), while some contain polyunsaturated vegetable oil (usually with a 'polyunsaturated' claim on the label). The amount of fat varies. It can have almost as much as regular ice cream (for example **SNOW BOY Polyunsaturated ice confection**) or as little as reduced or low-fat ice cream.

■ *Typical nutrient content (per 2 scoops):* 80 calories, 4 g fat, 9 g sugar.

FROZEN CONFECTION

Frozen confection is a type of dairy-based ice confection, but it must have at least 8% fat by weight. The name isn't used much these days because frozen confections can also simply be called ice confections, and most manufacturers choose to market them that way.

■ *Typical nutrient content (per 2 scoops):* 85 calories, 4.5 g fat, 9 g sugar.

TOFU ICE CONFECTION

Tofu ice confection contains some tofu, but usually soy protein or soy bean extract as well. It doesn't contain any dairy products, but usually saturated vegetable fat (coconut or palm oil) is added. There is no limit to how much fat can be used and it varies widely from brand to brand. The figures given below indicate the range you might expect to find.

■ *Typical nutrient content (per 2 scoops):* 100–120 calories, 2–7 g fat, 8–10 g sugar.

GELATO

Water and sugar are the main ingredients of gelato. Other ingredients include fruit juice and sometimes fruit. Most contain little or no fat.

■ *Typical nutrient content (per 2 scoops):* 65 calories, 0 g fat, 17 g sugar.

FRUIT-BASED ICE CONFECTION

The only one of this type we could find is **VITARI**. It's made mainly from fruit juice, with vegetable gums added to give the smooth ice cream-like texture.

■ *Typical nutrient content (per 2 scoops):* 60 calories, less than 1 g fat, 14 g sugar.

FROZEN YOGHURT

Frozen yoghurt has very similar ingredients to ice cream, but it's based on yoghurt rather than milk. Regular, reduced-fat and low-fat versions are available.

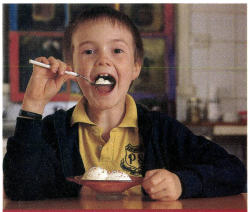
■ *Typical nutrient content, regular frozen yoghurt (per 2 scoops):* 75 calories, 2.5 g fat, 11 g sugar.

Nutrient content

We sent our trusty team of shoppers (in Sydney, Melbourne, Adelaide, Perth, Brisbane and Hobart) to look for frozen desserts with healthy-sounding names or claims. The table lists all the major brand names we found. Some of the products are not available in all states.

All figures given in the table are for vanilla, unless otherwise stated. If you buy other flavours, the energy, fat and sugar content may vary slightly — check the labels. The nutrition information is based on product labels (which, in previous food tests, we have found to be accurate).

The general classes of frozen products (such as 'Gelato' and 'Regular frozen yoghurt') are included for comparison. The nutritional information for these products comes mainly from the Australian Food Composition Tables.



Which ice cream is the best choice?

Brand / name (in order of fat content)	**Type**	**Fat** (g / 2 scoops)	**Sugars** (g / 2 scoops)	**Energy** (calories / 2 scoops)
Gelato	—	0	17	65
WEIGHT WATCHERS Sweet celebrations	Low-fat ice cream	< 0.5	10	65
NAYTURA Delite	Low-fat ice cream	0.5	2	55
VELVET CREAM Delite	Low-fat ice cream	0.5	2	55
BULLA Lite 'N Natural	Low-fat ice cream	0.5	10	60
VITARI *(A)*	Fruit-based ice confection	< 1	13	55
CHARIOTO Diet-Lite	Low-fat ice cream	1.5	4	50
NORCO Light ice cream slices *(B)*	Low-fat ice cream	1.5 *(B)*	7 *(B)*	55 *(B)*
FARMLAND Light	Low-fat ice cream	1.5	10	60
PETERS Light & creamy	Low-fat ice cream	1.5	9	70
AMARINA Low-fat frozen yoghurt	Low-fat frozen yoghurt	1.5	10	75
CHARIOTO Tofu Lite	Low-fat tofu ice confection	1.5	17	85
DAIRY BELL Lite	Reduced-fat dairy-based ice confection	2	6	55
FRUCCIO	Dairy-free ice confection *(C)*	2.5	5	65
DAIRY VALE Rich 'n' Light	Reduced-fat ice cream	2.5	10.5	70
OAK Classic Light	Reduced-fat ice cream	2.5	10	75
Regular frozen yoghurt	—	2.5	11	75
DAIRY BELL Reduced-fat	Reduced-fat ice cream	3.0	9	75
FARMERS BEST Dairy dessert	Dairy-based ice confection	3	11	80
BLUE RIBBON Light	Reduced-fat ice cream	3	12	85
SNOW BOY Polyunsaturated	Dairy-based Ice confection	4	8	80
Dairy-based ice confection	—	4	9	80
OAK Classic low-cholesterol	Frozen confection	4.5	9	85
Regular tofu ice confection	—	2 – 7	8 – 10	100 – 120
Regular ice cream	—	5	9	85
SNOW BOY NoMilk	Dairy-free ice confection *(C)*	5.5	13	110
Premium ice cream	—	6	11	110
SARA LEE Classic Light	Reduced-fat ice cream	6	25	175
Super-premium ice cream	—	10 – 15.5	14 – 28	155 – 265

< less than

Figures are rounded to the nearest 0.5 g fat, 1 g sugars and 5 calories. Two scoops is 100 mL of ice cream.

(A) Not available in vanilla; figures given are for Wildberry.

(B) All information is given per 2 scoops (100 mL) except for Norco Light ice cream slices, which come in prewrapped 90 mL slices.

(C) These products only contain small amounts of soy, not really enough to be tofu ice confection, so we've called them dairy-free ice confection.

Termite inspections — stop the rot!

Don't count on a pest inspector to tell you whether termites are eating your house away — that's the message of our latest report on pest inspections. While a few operators provided detailed inspections and good advice, many did not. Some even missed active termites.

A POORLY CONDUCTED PEST inspection can have disastrous consequences. A major termite infestation can eat away structural timbers in your house, making it unsafe and expensive to repair.

Our study found there are significant differences in the price companies charge to carry out inspections, the time spent doing them, and their thoroughness. Unfortunately, just because an inspection costs more doesn't necessarily mean it's any good.

We found similar problems with pest inspectors in our 1992 study — so it seems the industry hasn't really improved.

Disturbingly, some pest inspectors did not know — or admit to knowing — about the possible health effects of the chemical treatments they recommended, and a few even tried to bully householders into having chemical treatments. In one case, after a 40-minute termite inspection, a pest inspector spent another hour and three-quarters telling the householder about the horrors in store if she did not have a chemical barrier installed: "If you don't spray, termites could attack at any time."

While a few companies in our study provided detailed and accurate reports giving good advice, the vast majority did not.

In this report, we look at the problems we've found with the termite inspection industry. On page 13 we provide some help with finding a good pest inspector, and what you should expect from an inspection report. On page 15 we look at what can be done to prevent pest infestation and the various treatments available.

OUR TEST

A total of 44 commercial pest inspections was carried out on 16 properties around Australia in Sydney, Melbourne, Darwin, Cairns, Brisbane, Adelaide and Perth. For this report we focused on termites, so our volunteers asked for a "full termite inspection with written report". In most cases we had each house inspected by three different companies. This was followed within a week by our independent expert, deputy chief timber inspector for State Forests (NSW), Peter Passfield.

Companies in our study included well known national businesses such as FLICK and RENTOKIL, as well as large local operations servicing several suburbs. We also looked at companies with names which suggested an environmental focus, and those making environmental claims in their Yellow Pages advertising.

THE ROT SETS IN

Nine of the properties in our study had active termite infestations. These properties were inspected by 27 pest inspectors, and yet only four found all the termites located by our expert. Five others found some termites, while two-thirds could not find any. For example, at a volunteer's house in Cairns, two out of three inspectors missed active termites. Both inspection reports were vague and provided poor advice. The third company identified that termites were present and offered reasonable advice.

Of the other seven properties in our test, one had signs of recent termite activity, which all three companies and our expert found, but no active termites were located. The remaining six properties were termite-free, although companies' recommendations varied from preventive treatments to no advice at all.

A thorough inspection should detect both old termite damage and any active termites. Only four out of 27 inspectors found all the active termites in our test houses.

The quality of the written reports varied greatly, ranging from short notes, through standardised pre-written reports with tick boxes, to a detailed 11-page report with recommendations for preventive measures. One of the most worrying things we came across was the stated limitations of some of the inspection reports. For example, a form used by a few companies which offer the TimberSure Total Termite Protection Program (see *Insurance against termite damage?* on page 17) states:

"The report is not a guarantee that an infestation or damage does or does not exist in these areas."

In which case we wonder what is the point of paying a pest inspector to check your property in the first place?

COST AND TIME TAKEN

It takes time to do a thorough inspection — a minimum of one hour. Our expert spent between two and three hours at each house. In our study, the time taken by the pest inspectors ranged from 10 minutes to two-and-a-half hours, with most taking less than an hour. While the two-and-a-half-hour inspection resulted in a thorough report, many of the others — even those taking more than an hour

— missed inspecting important areas, such as whole rooms, ceiling spaces and gardens.

Unfortunately, the cost of an inspection is no guide as to how well it has been performed. The most expensive inspection in our study cost $450, even though the report failed to address major problems. Most inspections cost between $50 and $150, and some were even performed free.

Interestingly, an industry representative told us the cost of an inspection should range between $200 and $300. He felt that companies charging less than this may be "compromising the quality" of the service they offered.

On a more positive note, around 60% of the companies in our test were on time for the inspection, and 25% arrived early.

CHEMICALS "SAFE AS HOUSES"

The reliance on chemicals in the pest control industry is obvious; over 60% of the companies recommended a chemical barrier treatment in a situation where our expert considered it wasn't needed.

Where chemical spraying was recommended, most inspectors played down any possible health concerns with comments such as "no worries, luv", "safe as houses" and "no risk to humans".

In addition, some inspectors suggested that if a chemical barrier was not applied, the home would be 'invaded' by termites. One advised a chemical spray to a householder because her ceiling beams were pine and therefore susceptible to termite attack. Our expert later identified the beams as hardwood.

Little useful preventive information was provided — when it *was* given it was for the most part sketchy and incomplete. Only three companies provided advice which our expert considered comprehensive and thorough.

Some operators didn't seem to know very much about the chemicals they intended to use. One pest inspector who

How to choose a pest inspector

Property inspection is an important step in termite control. In an ideal world, all pest inspectors would be trained in building practices as well as pest inspection and control. They would have an understanding of building structures and their susceptibility to pest infestation and damage. Since our report shows the pest control world is far from ideal, here are some tips to help you find a competent pest inspector.

QUESTIONS TO ASK ON THE PHONE

- Ask for a full pest inspection that covers termites, borers and wood-decay fungi, not just termites. Confirm this again when the inspector arrives.
- Has the inspector undertaken formal training in pest control or inspection?
- Is the company and/or the inspector a member of a relevant industry association (see *If you're not satisfied*, below)? This won't guarantee a thorough job, but at least there's someone to complain to if things go wrong.
- How many years' experience does the inspector have? At least two years is preferable.
- How much will the inspection cost, and how long will it take?

THE INSPECTION

- Somewhere between one and two hours should be spent inspecting the property. All accessible areas should be inspected, including subfloor, roof void, interior, gardens, fences, outbuildings; areas that couldn't be inspected should be indicated in the report.
- Don't be afraid to follow the inspector around while they're doing the inspection — you're paying for it.
- Particular attention should be given to the subfloor areas and roof, and to any points of contact between timber and soil.

WHAT TO LOOK FOR IN AN INSPECTION REPORT

An inspection report should include:

- The name and qualifications of the person carrying out the inspection, a detailed description of the property and the date and time of the inspection.
- Location and description of past and present pest activity — if there's a current problem, the species responsible should be identified.
- If there are active pests, a proposal to eliminate them, detailing any chemicals required and their possible health and environmental effects, as well as precautionary measures required.
- Notes on all aspects of the property which allow termites easy access, or encourage their activity.
- Ways of reducing the home's susceptibility to attack (see *Prevention and cure* on page 15).
- Mention of any areas which could not be inspected due to restricted access, and a recommendation of how this can be overcome.

IF YOU'RE NOT SATISFIED

If you're not happy with the quality of an inspection report by a company which is a member of an industry association (either the Australian Environmental Pest Managers Association or the Australian Pest Controllers Association Inc), complain to the relevant association. If you're still not happy, contact the department of consumer affairs or fair trading in your state. Your state forest department or building advisory centre may be able to provide information on the treatment options available to you.

recommended spraying chlorpyrifos, when asked whether the householder should take any precautions, advised that it was "non-toxic". In fact, while having fewer long-term health and environmental effects than the now banned organochlorines chlordane and heptachlor, chlorpyrifos is toxic to the nervous system, causing headaches, fatigue, giddiness, chest tightness and nausea. Chronic exposure can lead to bronchial asthma and permanent damage to the nervous system.

Fourteen of the operators in our test made some sort of environmental claims in their company name or advertising. Eleven of these companies inspected premises where termites were present; 10 missed active termites completely and eight recommended a potentially hazardous chemical treatment. Their basis for making environmental claims seems debatable.

Clearly, many home owners are being misled — they are not being provided with the full range of options, particularly non-chemical methods of deterring termites, and are not being told about the possible health effects of the chemical treatments recommended.

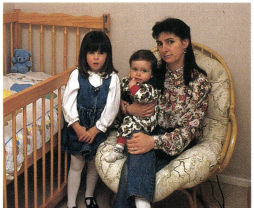
HOW THE BIG COMPANIES COMPARED

FLICK and **RENTOKIL** are well known names in most parts of the country, but this doesn't mean they offer a standard service throughout Australia. For example, the cost of an inspection by **RENTOKIL** ranged from free to $220, and inspections took from 20 to 75 minutes. All **FLICK** and **RENTOKIL** operators missed at least some active termites, and provided poor or just 'fair' reports.

FLICK does offer a detailed termite prevention plan, where more expensive options provide a higher level of service and the company is willing to accept liability. However, the 'gold' plan is based around the spraying of chlorpyrifos, which we recommend only as a last resort.

Larger companies which serviced several suburbs weren't much better.

A problem with termites



Facing a $4500 bill (and possibly more) to repair termite-damaged floorboards in her house, Brenda Felton of Boronia, Victoria, has consulted seven pest control companies to help her solve her termite problems. And she still hasn't found a solution.

Termite damage was first identified in Ms Felton's house when a builder providing a quote noticed 'ridging up' in hallway floorboards.

The first three pest control companies couldn't find any evidence of termite entry points into the house.

■ The first didn't even check beneath the house.

■ The second crawled around under the house but found nothing. Some *Nasutitermes* termites were found in the backyard and pronounced to be the species attacking the house, although it's a type of termite unlikely to have caused the damage.

■ Ms Felton felt the inspector from the third company did a very thorough inspection, tapping every piece of accessible timber inside and under the house with a screwdriver — but he found nothing either.

■ A fourth claimed to find a termite gallery under the house with live *Nasutitermes*, which no other inspector was able to locate previously — or since.

■ A fifth recommended chemical treatment, including drilling and injecting certain trees around the property

■ A sixth company managed to find an 80 mm wide mudpack (a termite mud 'tube' or 'gallery') which no one else had noticed. It also found and treated (unsuccessfully) a termite nest in a tree, as well as finding and treating more live termites under the house. Unfortunately even this didn't seem to solve the problem.

Subsequently floorboards collapsed in the baby's bedroom and in a wardrobe. Other areas in the house have "papery" floorboards, and walls are making "cracking sounds".

■ Ms Felton consulted a seventh company about 'bait-boxing', but was told she would have to wait until the weather was warmer.

At the time of writing, she had spent $650 on inspections and treatments, and another $1000 on drainage to minimise moisture under the house. Her problems still aren't solved, and she's up for $4500 to replace damaged floorboards.

WHAT SHOULD BE DONE

While the findings of our study paint a grim picture of the pest inspection industry, there is hope. According to one industry representative, there is "a growing group in the industry that is pushing for increasing standards, but the main barrier is the lack of government understanding and the lack of government will to do something positive".

At the moment, there's simply no easy way for a home owner to ensure a pest inspector does a good job. Fortunately, this may change. An Australian Standard for timber pest inspection (of buildings) is being developed. When it's released (hopefully by mid 1996), it will allow people to request an inspection that complies with the standard.

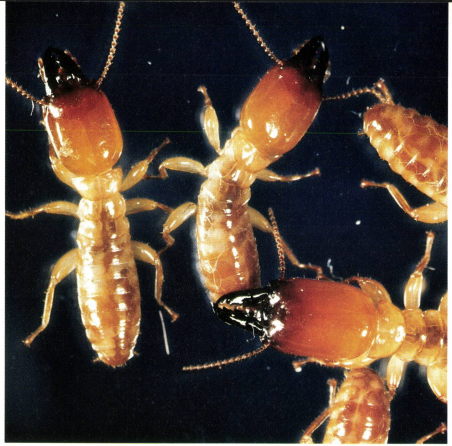
There are licensing systems for all pest *controllers* — the people who apply the chemicals — in all states and territories, all of which require some sort of training. On the other hand almost anyone can set themselves up as a pest *inspector*.

Clearly the following areas need to be addressed:

■ Pest inspectors, and not just pest controllers who are licensed to spray chemicals, need to be regulated. They should undertake some kind of formal training (such as the Pest Inspection — Timber course offered nationally by the Open Training and Education Network).

■ Pest inspectors and controllers should be trained to conduct thorough inspections. A review of the training requirements for licensing in each state is needed.

Prevention and cure



There are two main approaches to termite control: prevention and elimination. You can save yourself a lot of hassle and money by preventing termite damage in the first place.

IN AN IDEAL WORLD, REGULAR PEST inspections would ensure that any activity is detected and stopped before it causes serious damage. But our findings suggest you'd be safer to put your faith in preventive measures, and shop around for an inspection company you think you can trust.

THINGS YOU CAN EASILY DO AROUND THE HOME

The last thing you want to do is encourage termite activity around your home. Here are a few things you can do to make your property less hospitable to termites.

- Try to minimise moisture in the soil beneath and next to buildings, as subterranean termites and wood-decay fungi are attracted by moisture and humidity. For instance, make sure roof guttering systems are adequate, drains aren't blocked, leaking taps are fixed and subfloor drainage is working.
- Keep building timbers and the subfloor dry and well-ventilated. Moisture in walls can encourage termites to move upwards, so leaks, plumbing faults or whatever else is causing it should be repaired.
- Vegetation which grows on (or even close to) buildings can prevent the escape of moisture from walls and soil, impede airflow through ventilators, and make inspection of the building's exterior difficult or impossible. As far as possible keep plants clear of the actual walls, and choose varieties that don't need frequent watering.
- Don't attract termites with woodpiles stored directly on soil near the house or other buildings. Similarly, don't store timber (or other materials that contain cellulose, such as cardboard and paper) directly on soil underneath buildings. Make sure tree stumps and timber building debris are cleared well away.
- Plant termite-resistant trees and design your garden so that termites are not drawn near the house.

IF YOU FIND ACTIVE TERMITES ...

- Don't disturb the colony or break up termite workings, as the termites will move away and this may make effective treatment impossible .
- Don't spray with home insecticides, as this will make it harder for a pest controller to kill the whole nest.
- Try to identify the species of termite, as some species don't cause damage to structural timbers. Contact your state forestry department or the CSIRO for further information.
- Determine the extent of any damage. This may require the services of a qualified building inspector.
- Consult a licensed pest controller about taking steps to kill the colony — finding and destroying the nest is usually the most effective method (see page 18). The timber should be reinspected to determine if the treatment was successful.
- Make your home less attractive to termites — see *Things you can easily do around the home*, above.
- Consider the use of a chemical barrier treatment as a last resort — for example, if the colony could not be found, other treatments are ineffective, or if the building structure cannot be easily accessed or modified to reduce infestation by termites.
- Repair or replace damaged timbers using pest-resistant materials.
- Shop around till you find what seems to be a reliable pest inspection company, and use them for annual inspections.

KEEPING TERMITES OUT

If you're building a new house, preventive measures such as physical or chemical barriers make it harder for termites to invade your property. Using termite-resistant materials helps to avoid termite problems altogether. You can also use chemical or partial physical barriers with existing houses.

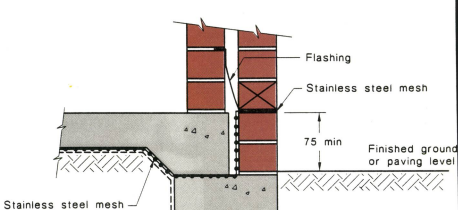
PHYSICAL BARRIERS

Physical barriers (for example Termi-Mesh and Granitgard) are designed to stop termites from entering a building. They are intended to protect the underside of the building, forcing termites to the perimeter of the barrier — where they can be easily detected.

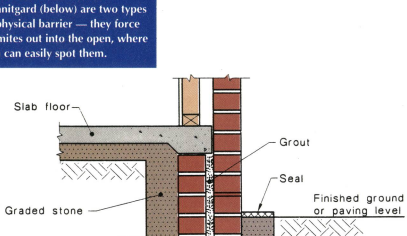
Termi-Mesh is a high-grade stainless-steel mesh system which is too fine for termites to pass through and too strong for them to chew through — similar to the way a flyscreen stops bugs and insects from getting into your home. Termi-Mesh is best installed during construction of the building, but can be installed to provide limited protection for existing houses.

Another type of physical barrier, **Granitgard** consists of a compacted layer of granite beneath the slab. The granite particles are too large and heavy for the termites to carry, too hard for them to chew through, and the spaces between particles are too small for them to crawl through. Like Termi-Mesh, it's best installed during construction. Both these physical barriers are now options for termite prevention as an alternative to chemical measures.

Ant caps (also known as termite shields) are metal barriers installed on piers and stumps, or built into masonry walls, to make termite access to your property more difficult.



Termi-Mesh (above) and Granitgard (below) are two types of physical barrier — they force termites out into the open, where you can easily spot them.



TERMITE-RESISTANT BUILDING MATERIALS

Another way of protecting your house is to use termite-resistant building materials, such as steel, aluminium, reinforced concrete, fibre cement and bricks, instead of timber. Although there are some termite-resistant timbers which are suitable for structural use — these are listed in Australian Standard AS 3660 — many of these timbers come from native forests, which some people may not be comfortable with.

Alternatively, timber used for framework can be treated with copper chrome arsenate (CCA), which increases its resistance to termites. While CCA is very toxic, it doesn't generally leach out of wood when used in this way. However, there are concerns about tradespeople who may be constantly exposed.

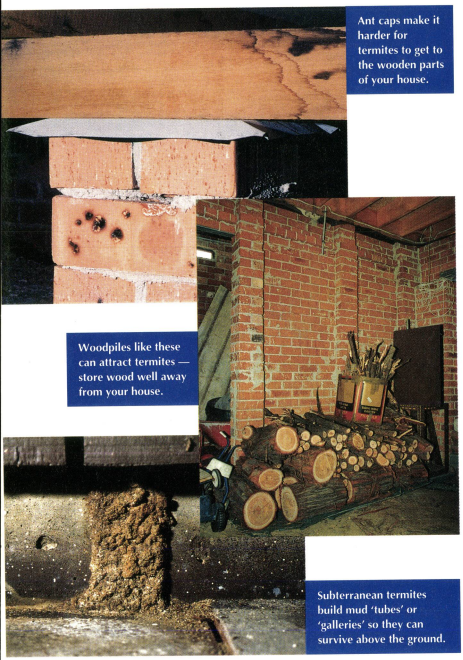
CONCRETE SLABS

As long as it has no cracks, a concrete slab installed to the relevant Australian Standards (AS 3660.1 and AS 2870) will provide protection against the entry of termites. Homes built since 1989 will have concrete slabs installed to these standards. If you have an older home, it's probably not advisable to depend on the concrete slab alone to provide sufficient protection, as it's unlikely to have been installed to the correct standard and it's difficult to detect cracking, which provides access to termites.

CHEMICAL BARRIERS

This type of treatment involves a chemical being sprayed into the soil around and under the house. Termites die if they try to tunnel through soil which has been treated. The chemicals are usually applied by:

- Hand-spraying under the concrete slab (before the slab is poured, while the house is being built, though the treatment will only last six to 10 years).
- Hand-spraying under a suspended floor (again best applied while the house is being built).



Ant caps make it harder for termites to get to the wooden parts of your house.

Woodpiles like these can attract termites — store wood well away from your house.

Subterranean termites build mud 'tubes' or 'galleries' so they can survive above the ground.

■ Rod injection or trenching around the perimeter of the building and underneath (for existing buildings).

■ A reticulation system under the slab (installed while the house is being built).

For many years, organochlorines were often the chemical used for these types of barrier. As of June 30 last year, the use of organochlorines for termite control has been banned in all states except the Northern Territory, where restricted use is permitted because of problems with *Mastotermes darwiniensis*, a particularly destructive species of termite. It is proposed that organochlorines use in the Northern Territory be phased out by June 1997. While there is no doubt these chemicals were effective, concerns about health and environmental effects were too great to allow their continued use.

As a result, except in the NT, there are only two chemicals that can be used while your house is being built: **chlorpyrifos** and **bifenthrin.** Both chemicals have a life of only six to 10 years — nowhere near as long as the average life of a house. So a reapplication system (such as a reticulation system) needs to be installed below the slab. Chlorpyrifos is also approved for use as a chemical barrier in existing houses.

Chronic or repeated exposure to chlorpyrifos, such as exposure to residues

Insurance against termite damage?

Wouldn't it be nice to be able to insure your house against termite damage? Well, you can — sort of.

A NSW company, Rapid Solutions, is offering the 'TimberSure Total Termite Insurance Program', an insurance package underwritten by FAI General Insurance Company. But there is a catch.

Before FAI will insure you against termite damage, you must have your house inspected and chemically treated by an 'FAI TimberSure Accredited Termite Specialist'. In other words, a pest controller approved by FAI.

Here are some factors you should consider before signing up:

■ While chemical treatments are perfectly legal, there are health concerns about the chemicals used to protect a house against termites (see *Chemical barriers*, left). And chemical barriers are just one way of minimising termite attack. A non-chemical method is preferable wherever possible from both a health and environmental viewpoint.

■ As well as an insurance premium, you have to pay for an annual inspection by a company which is TimberSure-accredited.

■ You must undertake and pay for any recommended treatment, or you will not be insured.

■ If there's timber damage, FAI selects the operator to fix it — so your options are restricted.

■ Only covers subterranean termites.

On a more positive note, FAI and Rapid Solutions were involved in developing the Open Training and Education Network's Pest Inspection course, which seems to suggest they are serious about improving standards.

of termite spraying, can have long-term health effects such as bronchial asthma and nervous system damage. Bifenthrin is toxic to aquatic life and therefore of environmental concern, but it appears to be less harmful to humans.

HOW DO YOU GET RID OF ACTIVE TERMITES?

If active termites are found on your property, it's important they're treated quickly, but with minimal use of hazardous chemicals. The type of treatment will depend on:

- The species of termite.
- Whether the nest has been located.

If the nest is found, chemicals with lower toxicity, such as **permethrin**, can perhaps be used. Permethrin is a synthetic chemical commonly used in household insecticides. While it is toxic to aquatic life, it's one of the less toxic chemicals for mammals.

If the nest is not found, a stronger chemical such as **arsenic trioxide** may be used to get the termites themselves to take the poison to the nest and destroy it.

ARSENIC TRIOXIDE

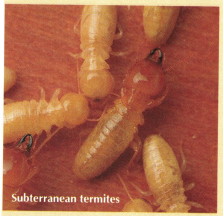
Considered to be one of the more reliable termite treatments, arsenic trioxide dust is applied to areas where termites have been found, but the aim is to kill the whole nest, which may be up to 50 metres away. It works by exploiting their feeding and grooming habits. Soldier termites come in contact with the powder and then contaminate the whole colony when they return to the nest. The chemical acts as a slow-release stomach poison. It's only recommended for certain species of termite, so it's important to identify which species is present.

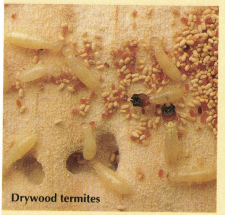
Arsenic will only be an effective treatment where large numbers of termites have been found; where only a few have been found, it may be better to start with a bait box, although this isn't always ideal.

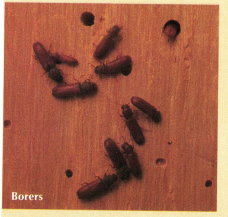
BAIT BOXES

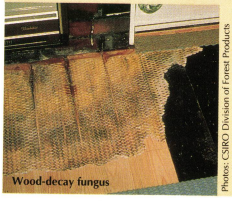
These consist of boxes filled with cellulose-based materials such as cardboard and woodchips, which act as a lure for termites. The box should be left in place for a period of about three weeks to ensure sufficient numbers of termites are attracted. If this happens, the termites in the box are dusted with arsenic trioxide which they will take back to the nest. Repeated treatments may be necessary to eliminate the problem. ❑

Knowing the enemy


Subterranean termites


Drywood termites


Borers


Wood-decay fungus

Photos: CSIRO Division of Forest Products

Termites are probably the best-known pests that attack wood — but they're certainly not the only ones to worry about. Borers and wood-decay fungi can be just as destructive.

Correct identification of the pests involved is important before any treatment. It could be, for example, that the termites in your garden are completely harmless and don't need eradication. Or if they do, there may be low-toxicity treatments available.

■ **Termites:** Of the 300 or so species of termite found in Australia, only 20 to 30 can damage timber used in buildings, fences, poles, posts, flooring or furniture. These fall into two main categories:

Subterranean termites need contact with the soil or a continuous moisture supply to survive. They build their nests underground, beneath buildings, inside tree trunks or stumps, or in mounds above ground and in trees. To reach the timber that provides their food, they tunnel through the soil, while above ground they build 'tubes' or 'galleries' from mud. Despite being 'subterranean' termites, they can be found many floors up. They can also damage growing trees.

Drywood termites don't need contact with the soil; instead they get the moisture they need from contact with wood. Found mainly in subtropical and tropical areas, where humidity and temperatures are constantly high, colonies develop quite slowly as the termites excavate tunnels and chambers within the timber.

■ **Borer** is the name given to certain types of beetle, weevils, wood moths and wasps, which at some stage of their life cycle — usually when they're larvae — use timber as nourishment. Most cause only superficial damage, but as with termites, correct identification is important.

■ **Wood-decay fungus** is another significant wood-destroying pest. According to some experts, it causes more damage than termites. In addition, timber decay caused by some species of wood-decay fungi attracts some species of subterranean termite.

Windows 95

Is Windows 95 as 'revolutionary' as Microsoft claims it to be? And more importantly, is it worth buying and using on your computer?

"IT'S EASIER, FASTER AND MORE fun than ever" — well, that's what Microsoft says about its Windows 95 operating system. We resisted reporting on Windows 95 until we were able to look at a fully finished version. Overall we think it's an improvement over earlier versions of Windows — some of its features are impressive and we generally found it easy and fun to use.

However, we don't think it's necessary for most people to upgrade straightaway, and some people may never need to. In addition, if you have a slightly older computer the cost can really mount if you want to upgrade it to run Windows 95 properly. Users of other types of computer, such as Macintosh and Amiga, already have access to many of the features found in Windows 95.

WHAT IS WINDOWS 95 ANYWAY?

Every computer has an operating system; it's what tells the computer how to work. Think of an operating system as a manager. A manager tells workers what to do and allocates resources to get the job done. In a similar way, an operating system makes sure the different parts of the computer work together.

Most modern computer systems have a graphical user interface (GUI) operating system, which simply means that instead of solely typing commands into your computer, you can point at 'icons' (small pictures representing programs or special functions) and menus on the screen.

If you have a PC (IBM-compatible personal computer) the operating system you're already running is very likely to be Microsoft's Windows with DOS or IBM's OS/2, or just DOS. Other types of computer come with their own operating system: the Macintosh has Mac OS, the Amiga has Amiga OS and the Acorn has RISC OS — you can't run Windows 95 on these other systems.

MINIMUM SYSTEM

The packaging specifies that the minimum system required to run Windows 95 is a 386 DX computer, with four megabytes (Mb) of memory — though it does recommend 8 Mb of memory for better performance.

■ 386 DX minimum processor

386 refers to the main chip inside your computer — it's older and slower than a 486, or the next step up, a Pentium. 386 DX and 486 DX chips are more powerful than equivalent SX chips.

We tried Windows 95 on several different computer systems, including a 386 DX, a 486 DX and a Pentium. While it's possible to run Windows 95 on any of these processors — with the 486 and Pentium offering better performance — we found the real issue is memory.

■ 4Mb minimum memory

The package ran slowly on systems with only 4 Mb, but ran well with 8 Mb. A 16 or 32 Mb system would be even better, as some of today's software requires a minimum of 8 Mb.

■ Hard disk space

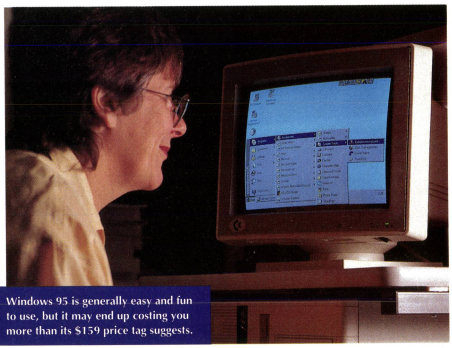
Windows 95 also takes up a lot of space on your hard disk — around 35 Mb for the full program (50 Mb during installation). If you have a hard disk of less than 200 Mb you'll find it limiting. We suggest you consider upgrading to a 540 Mb model.

HOW COSTS CAN MOUNT

While the purchase price of Windows 95 is around $159, you might also need to spend a lot more upgrading your computer to run it properly.

Windows 95	$159
Microsoft Office upgrade	$399
For an older 386 SX or 286 computer:	
Additional 4 Mb memory	about $300
540 Mb hard disk	$400
New 486 processor and board	$300

Prices are a rough guide only.



Windows 95 is generally easy and fun to use, but it may end up costing you more than its $159 price tag suggests.

INSTALLATION

Windows 95 is available on both CD-ROM and floppy disk. The disk version takes much longer to install (sometimes more than two hours), compared to around 25 minutes for the CD-ROM version. Expect to spend more time if you run into any problems.

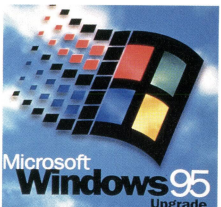
We asked seven CHOICE staff to install Windows 95 on their computer to see if ordinary users could do it without help. Of these seven, four were inexperienced computer users, while the rest were fairly knowledgeable. The experienced users were able to install the software and solve any problems they encountered. On the other hand, three of the inexperienced users were unable to install the software the first time they tried. After calling the Microsoft helpline, two were able to finish the installation. The third person gave up after being told she should take Windows 95 off again and then have another go, which would mean another two hours in front of the computer.

Windows 95 has a built-in removal program, so that if you don't like it (or have problems) after installing it, you can go back to your previous operating system.

WHAT DOES IT ALLOW YOU TO DO?

Despite the problems some people had with installation, once it's running Windows 95 offers some interesting features and benefits.

■ Multitasking — the ability to run more than one program at the same time — works better than it did on earlier versions of Windows, but still not as well as it does on other types of computer. For example, the Amiga 1200 (which isn't PC-based) can multitask well with only 4 Mb of memory, while Windows 95 requires a minimum of 8 Mb to be able to do anything useful. Multitasking could be useful if you need to print a letter and work on a spreadsheet at the same time, for example.



Good marketing: the Windows 95 logo seems to be everywhere.

■ The 'desktop' (computerspeak for what's on the screen) is more user friendly, with a 'task bar' that you can move around, 'recycle bin' and 'shortcuts'. The task bar is where various operations are found, including the much advertised 'start' button, which allows you to start the program you want quickly and easily. The recycle bin provides a simple way of deleting unwanted files — you simply 'drag' your files into it. 'Shortcuts' allows you to place icons representing your regularly used programs onto the screen for easy access.

■ As long as you're using software designed for Windows 95, filenames can be up to 250 characters long, rather than the limiting eight characters of previous versions of Windows. So instead of having to call your files by cryptic names such as 'ausnov.doc', you can call them 'The great Australian novel.doc'. When you've accumulated several hundred files on a disk, easily recognisable filenames can be a boon.

■ The way you handle files has become much closer to the Macintosh approach. If you need to use or look at a file, you simply point and click at icons which represent folders and files.

EXISTING SOFTWARE

We tried several programs to see whether they would work with Windows 95. We only had a few minor problems, which we were able to sort out — although inexperienced users may find it more difficult.

THE MICROSOFT NETWORK

Windows 95 allows easy connection to the Microsoft Network (MSN). In Australia, MSN is run by On Australia, a joint venture between Microsoft and Telstra — a cosy relationship not unnoticed by competing on-line services and the Australian Competition and Consumer Commission (the new replacement for the Trade Practices Commission and the Prices Surveillance Authority).

If you've got a modem, you can connect your computer to the MSN through the phone line and use a range of services, for which you are billed. At the time of writing there are two main billing plans: Standard and Annual. The Standard plan costs $9.90 per month, which includes two hours of access; $5 is charged for every extra hour of use. The Annual plan costs $90 per year, which includes two hours per month, and then $5 for every extra hour. An On Australia spokesperson told CHOICE that new pricing plans will be released early in 1996 to cater for 'power', 'heavy' and 'off-peak' users.

We had a quick look at the system to check that it actually works and to see what's available. Our first impressions were:

■ Good layout; nice to look at and easy to use.

■ Speed was reasonable, though sometimes it wasn't clear what the software was doing, resulting in our tester requesting the same file twice — which wastes time (and money).

■ MSN has nothing like the breadth of information available on the Internet's World Wide Web (WWW), and what there is, in some cases, verges on advertising.

■ When we looked at MSN, Internet access had not been fully implemented. According to On Australia, WWW access via the Internet should be available in Sydney and Melbourne by the time you read this, and to the rest of Australia a little later in the year.

■ Interesting and useful features included e-mail (electronic mail), message and chat areas, and some interesting information services, such as wine and restaurant guides.

■ Trying to multitask while using MSN 'hung' the system, even when using a Pentium-based machine with plenty of memory.

We're planning a much more thorough evaluation of MSN as part of a test we're doing of commercial on-line services later this year.

Bear in mind that to take advantage of the full capabilities of Windows 95, you need software specially written for it, such as *Microsoft Office designed for Windows 95* — so that's more money to spend to get the full use of your upgrade.

FOR USERS WITH A DISABILITY

One area which hasn't attracted much media attention is Microsoft's efforts to make Windows 95 easier to use for people with a disability:

- The screen can be set to 'high contrast', which makes it easier to read text.
- Sound warnings, such as 'beeps', can be displayed on the screen.
- The keypad can be used to control the pointer, instead of the mouse.
- The keyboard can be set to ignore brief or special keystrokes.
- Keys such as 'shift', 'control', and 'alt', which are usually pressed at the same time as other keys, can be set so they only need to be pressed one at a time.

OUR RECOMMENDATION

Microsoft says it will continue supporting the previous version of Windows for some time yet. However, this won't be forever, and eventually — by virtue of Microsoft's size and market share — Windows 95 is likely to become the industry standard, as Windows 3.11 is today.

- If you have a PC which you use for a specific task, and your existing set-up does its job, upgrading immediately to Windows 95 probably won't provide any major benefits.
- If you're buying a new PC, it's worthwhile making sure it comes with Windows 95 and software designed for it. It's likely that it will eventually become the industry standard, so you may as well be up-to-date.
- If you're into computers and like to keep your PC up-to-date, by all means upgrade to Windows 95 — just be prepared to pay extra to upgrade your hardware and sometimes software as well. At present Windows 95 is not perfect, so be prepared to spend time (and possibly money) getting used to a new system and solving any problems as they arise.
- If you have another type of computer, (such as an Amiga, Acorn or Mac), and you're happy with it, don't worry about Windows 95. ❑

SUBSCRIBER 19th DRAW

For new subscriptions and renewals received January 1 to March 31, 1996.

Our 19th draw will be held April 5, 1996. Two lucky people will win prizes from tests published in CHOICE in June and July 1995.

1st Prize: An electric convection heater (June 1995) valued up to $399.

2nd Prize: An upright vacuum cleaner (July 1995) valued up to $299.

Our 17th draw was won by Susie Hunter of Sydney who chose a Samsung VCR and AL-KO Dynamic mulcher.

Second prize winner Janet Million received a Sony portable stereo.

Congratulations to both our winners — we hope you have many years' use from your prizes.

These are all products we bought for testing, so you won't be the first to turn them on or set them up. But we'll cover any service problems with a CHOICE warranty that'll match the manufacturers' — just as if you'd bought them new.

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This guide contains results of independent European tests of compact cameras, SLRs, camcorders, single-use cameras and accessories, almost all of which are available in Australia. With this guide, you'll be able to judge which features are worth having and which are just expensive gimmicks. You'll also find advice on photography and equipment.

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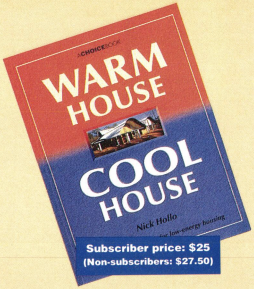

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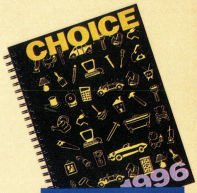

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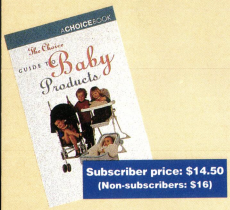

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Third edition

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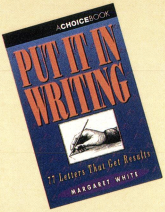

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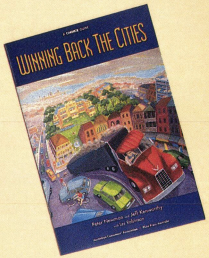

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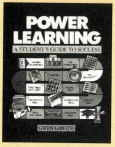

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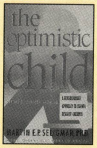

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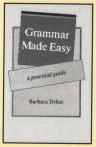
Depression and lack of confidence can afflict children, and if not acted upon in childhood can be carried on through life. Martin Seligman looks at what can be done to help children attain optimism and confidence throughout their lives.

$20 **Code: OC**



Grammar Made Easy

As the school year starts, grammar comes to the forefront again. This book will help you improve your grammar or explain it to your child. Through a series of simple step-by-step exercises it looks at all the common mistakes, plus punctuation and the parts of speech.

$17 **Code: GME**

Fortune Strategy

If you would like to know about investment strategies at a reasonably sophisticated level, this book explains its topics in an easy-to-understand way. It explores investing in both equities and property, and covers, among other things, risk management via 'portfolio theory'.

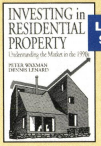
$25 Code FS

LIMITED STOCK

Sensible Share Investing

The author, with over 40 years' experience in share investing, sets out his advice on all aspects of investing in shares. Including the timing of both selling and purchasing, the warning signs of a slump, the pros and cons of unit trusts, and how to analyse your shares' performance.

$20 Code: SSI



LIMITED STOCK

Investing in Residential Property

Whether you're buying a home or planning an investment, it helps to understand the residential market and the factors which influence it — such as economic cycles, taxation policy, public housing programs, the cost of finance, construction costs and investment objectives. It includes a chapter focusing on Sydney.

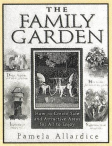
$25 Code: IIRP

Let's Go Shopping

Simon Clews' international mail order guide

Mail order shopping is a popular way of getting what you want without going out of your way. *Let's Go Shopping* guides you through the range of international products (and catalogues) that are out there waiting for you.

$15 Code: LGS

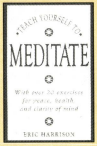


The Family Garden

How to create safe and attractive areas for all to enjoy

A garden for the family has to consider a lot of things: a range of ages and uses, furniture, plants, pets and safety. This book looks at all these issues and provides inspiration and advice on creating the perfect garden for everyone in your family.

$35 Code: FG



Teach Yourself to Meditate

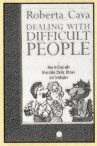
This is an easy-to-follow guide to meditation, which can help you overcome the stresses of everyday life.

$17 Code: TYTM

New Additive Codebreaker

We are returning this useful food additive guide to the Consumer Bookshelf. It explains the approved food additives, their acceptable daily intake levels and any potential problems.

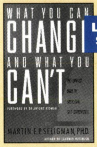
$17 Code: NACB



Dealing with Difficult People

We all have to deal with them — 'difficult' people. You can learn useful strategies from this book — by using effective communication skills and behaviour you will be able to cope when you encounter those difficult people.

$13 Code: DWDP



LIMITED STOCK

What You Can Change and What You Can't

This book clearly and realistically identifies the areas in your life you can change and helps you decide how to act upon them. Looking at the general and the specific, some of the areas covered include: phobias; post-traumatic stress; weight control; alcoholism; depression and anger.

$20 Code: WYCC

Personal loans

In this article we show you where to go for the best interest rates on personal loans, and give you a guide to the alternatives.

IF YOU WANT TO BORROW MONEY and pay it back over a fixed period of time, a personal loan can offer lower interest rates (and often higher amounts) than running up a credit card bill or an overdraft.

A loan with a **fixed interest rate** can help you plan your repayments carefully and guarantee they won't go up, even if interest rates skyrocket. But you're likely to have to pay a higher interest rate when you start than you would for a **variable-rate loan;** whether it continues to be more expensive depends on what happens to interest rates in the future.

You may be able to get a lower interest rate for a **secured** loan. This means you put up security (for example, your house or car) as a guarantee you'll repay the loan.

OTHER CREDIT

A personal loan isn't necessarily the best way to borrow. Below we list your other options.

■ **Credit card**
Typical interest rate: 12.75% to 16.95% (plus an annual fee in many cases).
What it involves: Getting extra credit on a credit card can be a good idea for short-term borrowing, because there are no additional fees and you can pay it off when you want to (subject to the minimum repayment requirements). However, interest rates may be high, and lending limits may be lower than you're looking for.

■ **Overdraft**
Typical interest rate: 13.5% to 16% (there may also be an arrangement fee).
What it involves: Some accounts offer the facility to borrow money on overdraft — though you're likely to need to arrange it first with the institution. This is a very flexible way to borrow. But watch out: running an overdraft could mean you cop monthly fees and transaction charges.

■ **Equity home loan**
Typical interest rate: 10.25% to 11.5% (plus initial fees and charges).
What it involves: You take out a mortgage on your home (or other property). It's likely to have higher lending limits than a personal loan (and may only be available for amounts over $20,000, for example). They can offer a good deal, but make sure you can meet payments or you could lose your home. For smaller amounts the relatively high fees can make these loans expensive.

PAYING OFF EARLY

If you're taking out a loan it's important to check what will happen if your circumstances change and you want to pay it off early.

When Dave Brown from WA arranged finance for the purchase of a secondhand Nissan Pulsar for his wife, the salesman persuaded him to take out a five-year car loan, rather than for the 30 months he'd been considering. Dave took out the longer loan because he was told he could repay it early or make larger monthly payments if he wanted — the deal seemed to give him more flexibility.

Having made much larger payments than the $205.23 due monthly, Dave wanted to pay off the last of the loan after the 30 months he'd originally anticipated. When he asked how much it would cost to pay out the loan he was horrified to find the fact he'd made higher payments had been ignored when calculating the accrued credit charge. So, although the amounts he'd paid were set against the amount owing, the interest was still calculated just as it would have been if he'd made the standard payments.

Dave argued the payments he'd made meant his interest rate worked out at over 20%, rather than the 15.5% he was quoted, and that this resulted in his having paid 'unnecessary' interest of around $1000. The discrepancy was because the lender simply applied the formula set out in the Credit Act, which makes no allowance for payments in advance of due dates. The lender would not accept Dave's calculations, and he had to pay up in full.

However, Dave also had a loan with another lender (for *his* car), and when the same situation arose the lender settled that loan for the amount Dave calculated was due (saving him $235.16).

The new Credit Code (due to be introduced in March) will, for new loans, put an end to this sort of problem — the interest due will be calculated on a daily basis, and any extra charges for early payment should reflect only the lender's extra costs. But if you've got an existing loan, check whether any additional payments you make will reduce the amount of interest you have to pay.

Lender	Quoted interest rate (%)	Loan size	Term available
CHEAPEST: SECURED LOANS WITH FIXED INTEREST RATES			
NAB	10.95 *(B)*	$5000 to $80,000	6 months to 5 years
Adelaide Bank	11.95 *(C)*	$2000 to $50,000	1 to 7 years
Energy CU (WA)	11.95 *(D)*	no set limits	1 to 3 years
Bank of Melbourne	12.50 *(E)* to 13.50	$1000+	1 to 7 years
Metway Bank	12.50	$2000+	1 to 7 years
Town & Country Bank (WA)	12.50 *(C)*	$1000+	1 to 5 years
THE REST OF THE BIG FOUR BANKS: SECURED LOANS WITH FIXED INTEREST RATES			
ANZ	13.50	$3000 to $100,000	1 to 7 years
Commonwealth	not offered		
Westpac	13.50	$4000+	1 to 7 years
CHEAPEST: SECURED LOANS WITH VARIABLE INTEREST RATES			
Lithgow Mutual CU (NSW)	8.75 *(E)* to 12.75 *(C)*	varies	up to 7 years
CBOA Credit Union *(A)*	10.25	no set limits	no set limits
Westpac	10.40 *(E) (F)*	$4000+	no set limits
Heritage BS (Qld)	10.50 *(E) (G)*	$1000+	no set limits
La Trobe Country Credit (Vic)	10.50 to 10.85 *(C)*	no set limits	no set limits
THE REST OF THE BIG FOUR BANKS: SECURED LOANS WITH VARIABLE INTEREST RATES			
ANZ	12.75 *(B) (H)*	no set limits	up to 30 years
Commonwealth	13.00 *(I)*	$5000+	up to 15 years
NAB	10.50 *(B) (F)*	$5000 to $80,000	6 months to 5 years
CHEAPEST: UNSECURED LOANS WITH FIXED INTEREST RATES			
Illawarra CU (NSW)	11.25	$5000 to $25,000	up to 5 years
Energy CU (WA)	11.95 *(D)*	no set limits	up to 3 years
Adelaide Bank	12.50	$2000 to $10,000	1 to 7 years
State Bank NSW	12.90 to 13.40	$5000+	1 to 7 years
BIG FOUR BANKS: UNSECURED LOANS WITH FIXED INTEREST RATES			
ANZ	13.50	$3000 to $100,000	1 to 7 years
Commonwealth	13.50 to 14.50	$2000 to $20,000	1 to 7 years
NAB	13.45 *(J)*	$5000 to $80,000	6 months to 5 years
Westpac	14.50	$4000 to $20,000	1 to 7 years
CHEAPEST: UNSECURED LOANS WITH VARIABLE INTEREST RATES			
CBOA Credit Union *(A)*	10.25	no set limits	up to 7 years
Endeavour CU (NSW, Qld)	11.00 to 17.50 *(K)*	$1000 to $25,000	up to 5 years
Community First CU (NSW)	11.40 to 18.00 *(L)*	$1000 to $25,000	up to 7 years
Queensland Professional CU (Qld)	11.50 *(D) (M)*	no set limits	up to 5 years
BIG FOUR BANKS: UNSECURED LOANS WITH VARIABLE INTEREST RATES			
ANZ	from 12.75 *(N)*	no set limits	up to 30 years
Commonwealth	not offered		
NAB	13.00 *(F)*	$5000 to $80,000	6 months to 5 years
Westpac	12.75 *(F)*	$4000 to $20,000	1 to 7 years

(A) For Commonwealth and Reserve Bank employees, families and retirees only.
(B) The security required is typically a term deposit or life policy.
(C) Secured against a registered vehicle.
(D) 1% initial fee.
(E) Rate for loan secured against deposits.
(F) $100 initial fee.
(G) $75 annual fee.
(H) $100 to $250 initial fee; $25 fee per quarter.
(I) Fees depend on loan size.
(J) There may be an initial fee for larger loans.
(K) $25 initial fee.
(L) $40 initial fee.
(M) Car loan only.
(N) $25 quarterly fee.

GUIDE TO THE TABLE

For this report we assessed over 200 loans from more than 100 lenders. We looked at fixed and variable-rate unsecured loans, and at loans which can be secured against things like goods, a car, term deposits or equities. As well as pointing out the lenders with the lowest rates, we tell you what you can expect to pay if you go to one of the big four banks (sometimes they're among the cheapest): ANZ, Commonwealth, NAB and Westpac.

For loans secured against property (not included in these tables) there may be large fees to pay — search and solicitor's fees, for example — and your best bet could be to approach your existing mortgage lender first (if you have one). You might also want to look for a 'line of credit' rather than a fixed-amount loan. With a line of credit you don't need to borrow the whole amount at the outset, just when you need it.

When considering a loan, get details of the monthly payments before committing yourself. It's a good idea to work out a household budget to see what the extra payments will mean in terms of your income. And consider the period you want to pay over. While it might be sensible to pay for a new pool over 15 years, taking out a 15-year loan to pay for a car is unlikely to be a good idea. Most of the loans in the tables are for five or seven-year terms.

The rates and loan information is based on data supplied to CHOICE by Cannex, and was correct on November 23, 1995.

Where no state is shown in brackets after the name of the lender, the loans are widely available. Some credit unions have strict rules about membership.

Secured loans in this table may require deposits, cars, goods and/or equities as security. In some instances a guarantee may also be acceptable (the guarantor should take expert advice before giving guarantees). We have not listed loans requiring property as security, although these may offer the lowest rates.

Letters

OK TEDI AN ISSUE OF TRUTH IN ADVERTISING

I was disturbed to read in the press that the Australian Consumers' Association had attached its name to a criticism of the Ok Tedi mine.

I fail to see how this action is within the charter of the ACA. I feel that I can detect a politicisation of the ACA in recent times.

My late wife and I have been members of the ACA for many years, but in the light of my suspicions I may have to consider my continued membership.

I will be interested to have your reaction to my observations.

G W Kidman
Clifton Springs, Vic

The Australian Consumers' Association, together with the Australian Conservation Foundation and the Australian Council for Overseas Aid, has lodged a complaint about BHP's press advertisements relating to its Ok Tedi mine in Papua New Guinea.

We would like to assure all our subscribers that our intervention in the BHP/Ok Tedi issue is not from any 'political' perspective. We have fought for years to ensure that any advertising material is truthful, and we pursue this position regardless of whether the issue has been 'politicised' by others.

In this case it is not the issue of the mine or the mining behaviour of the company which we took up, but rather the substance of the advertising conducted by the company falls appropriately within the accepted codes of advertising conduct.

In light of the BHP/Ok Tedi issue, we will be calling for a review of advertising self-regulation by the Australian Competition and Consumer Commission (ACCC).

GETTING YOUR WHITES TRUE-BLUE

It certainly is not easy being 'green' and 'true-blue'. Since the latest *AusBuy Guide* came out I just don't know which detergent to buy.

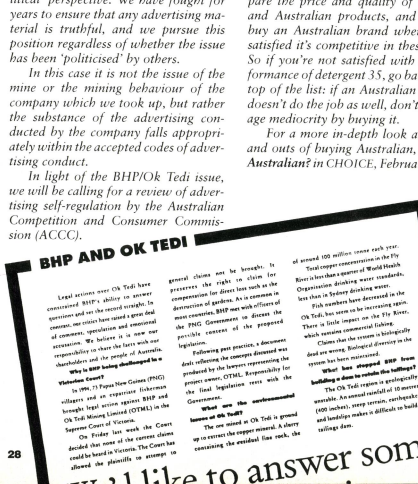
I go to the supermarket armed with the *AusBuy Guide* and August '95 CHOICE, and your top 33 (for top loaders) are all foreign-owned. So to buy Australian I have to buy number 34 or 35 — but then my washing won't be 'whiter than white'! Since using a packet of number 35 (they didn't have any 34) my washing isn't as soft and all the stains don't disappear, so I'm in a dilemma.

I can't remember when we joined ACA, I think it was 1961, but keep up the good work — and making me look silly (carrying around the magazine) in the supermarket!

P Allen
Dolls Point, NSW

As we reported in February 1994, 'buying Australian' — be it made or owned here — isn't the simple panacea for our economic ills that it's sometimes cracked up to be. Our advice then was to compare the price and quality of overseas and Australian products, and only to buy an Australian brand when you're satisfied it's competitive in these terms. So if you're not satisfied with the performance of detergent 35, go back to the top of the list: if an Australian product doesn't do the job as well, don't encourage mediocrity by buying it.

For a more in-depth look at the ins and outs of buying Australian, see ***Buy Australian?*** *in* CHOICE, *February 1994.*



BHP AND OK TEDI

Legal actions over Ok Tedi have consistently BHP's ability to survive questions and win the second straight. In essence, two critics have raised a great deal of concern, speculation and emotional accusations. We believe it is now our responsibility to share the facts with our shareholders and the people of Australia.

Who is BHP being challenged in a Victorian Court?

In 1994, 71 Papua New Guinea (PNG) villagers and six expatriate fishermen brought legal action against BHP and Ok Tedi Mining Limited (OTML) in the Supreme Court of Victoria.

On Friday last week the Court decided that none of the current claims could be heard in Victoria. The Court has allowed the plaintiffs an attempt to

general claims not be brought. It preserves the right to claim for compensation for direct loss such as the destruction of gardens. As is common in most countries, BHP met with officers of the PNG Government to discuss the possible content of the proposed legislation.

Following past practice, a document drafted reflecting the concepts discussed was produced by the lawyers representing the project owner, OTML. Responsibility for the final legislation rests with the Government.

What was the environmental harm at Ok Tedi?

The ore mined at Ok Tedi is ground up to release the copper mineral. A slurry containing the residual fine rock, the

of around 100 million tonne each year.

Total copper concentration in the Fly River is less than a quarter of World Health Organisation drinking water standards, less than in Sydney drinking water.

Fish numbers have decreased in the Ok Tedi, but seem to be increasing again. There is little impact on the Fly River. There is little impact on the Fly River, where it remains commercial fishing.

Claims that the ecosystem is biologically dead are wrong. Biological diversity in the system has been maintained.

What has stopped BHP from building a dam to retain the tailings?

The Ok Tedi region is geologically unstable. An annual rainfall of 10 metres (400 inches), steep terrain, earthquakes and landslips makes it difficult to build a tailings dam.

I'd like to answer some

NO REPRIEVE FOR THE INVESTIGATORS

I am concerned that *The Investigators* will not be seen on our screens in 1996. I feel that such a stupid decision should not be taken lying down.

I have already written to the ABC about this. What action can the Australian Consumers' Association take to highlight this issue?

I hope we can take some action to reverse this decision and benefit many people in this country.

R Behan
Goulburn, NSW

We share your sentiments with regard to the demise of ***The Investigators****, and we have in fact written to the ABC in protest.*

The Investigators *has played an important role in raising consumer concerns and addressing a wide range of consumer problems over the past decade. It has contributed to increasing awareness about consumer rights and helped demonstrate to the community that it doesn't have to tolerate unfair and unreasonable business practices.*

Unfortunately the ABC's response gave us no reason to hope that the program would be given a reprieve. It indicated that its belief was that consumer awareness had increased over the past 10 years, and legislative protection had become much greater. So it seems the program was considered to be past its use-by date.

We certainly don't agree with the ABC — consumers still find themselves in impossible situations when faced with companies that offer shoddy products, hopeless advice and poor customer service. In fact, in the increasingly complex world of the nineties (with issues such as superannuation, financial planning and telecommunications requiring decisions which can affect our lives for years to come), programs such as ***The Investigators*** *(and publications such as CHOICE) are still crucial to inform and protect consumers.*

It seems the ABC has made its decision, but it has left Australian consumers the poorer.

Buying a mobile phone

Whether you want it for emergencies, business or just to keep in touch with friends, a mobile phone can be very handy — but there are traps. Picking the wrong network or 'calling plan' can be an expensive mistake.

NO LONGER THE STATUS SYMBOL they were a few years ago, mobile phones are a part of daily life for many people. They're also a lot cheaper now; an analogue model can be bought outright for a couple of hundred dollars.

Mobile phones are great for calling for help in emergencies, such as roadside breakdowns. If you run a business, they can help you keep in touch with clients even when you're away from the office. On the other hand, you may find it awkward to carry a mobile phone around with you all the time, or you may find that the few calls you receive and make don't justify the ongoing costs.

In order to buy the right phone, you need to consider:

- Whether to buy a digital or analogue handset — making sure it has all the features you want.
- Which carrier (service provider) to connect your mobile phone to.
- Whether to buy your handset on a plan if you decide to go digital.

ANALOGUE VERSUS DIGITAL

At present there are two types of mobile phone available in Australia: analogue and digital.

The older and more established analogue network was introduced by Telstra in 1987. At present both Optus and Telstra use this network to offer analogue mobile phone services.

The government has decided to phase out the analogue network by the year 2000. To replace it, Telstra, Optus and Vodafone (the carriers) are each installing competing digital mobile phone networks. These digital networks comply with the Global System for Mobile Communications (GSM) which is also used in much of Europe, Asia and the Pacific (for more information on GSM see *The digital advantage* on page 34).

The carriers say digital mobile phones are less prone to interference and noisy lines, offer better protection against other people listening in, are more reliable, with fewer lost connections and crossed lines, and have longer battery life. They also have more features than analogue phones, including fax/data capability, paging and voice mail (see *The digital advantage* for explanations and more information).

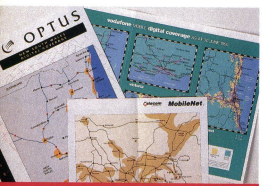
Since the closure of the analogue network is around four years away, analogue handsets are still a viable option. They're now quite cheap, connection fees are slightly less than for digital, and if you only want a phone for emergency use, it's hard to beat some of the analogue tariff plans.

For example, by subscribing to Telstra's Flexi-Plan 10 or Optus's Freedom-Plan for analogue phones, you pay an access charge of only $10 per month, plus the cost of any calls you make (see *Analogue tariff plans* overleaf). This is ideal for emergency or low-volume users. If you tend to make a lot of calls you'll need to compare the value of high-volume plans for digital and analogue phones — our tables overleaf will help.

Selecting a carrier

COVERAGE IS THE MOST CRITICAL aspect of choosing a carrier. If you can't use your mobile phone in the areas in which you travel, it's basically useless. Coverage strength depends largely on whether the carrier has installed base stations in the local area (see *How do mobile phones work?* on page 33). Choosing the tariff plan which suits you is also important. Factors to bear in mind are:

- The analogue network is still considered to have the widest coverage, which according to Telstra includes 1100 base stations reaching 89% of the population (86% according to Austel). Because Optus's analogue service uses Telstra's network, coverage is the same for both. Basically, for analogue phones it comes down to which carrier offers the best tariff plan.
- Selecting a digital carrier is a lot more complicated, and in many cases is dependent on the package offered (see *Buying on a plan* on page 32). Because each carrier has its own network, coverage varies greatly. At present the digital networks are still growing. Telstra says that by January 1996 its network will consist of over 1000 base stations reaching 89% of the population. Optus says it will reach 83% of the population through more than 600 base stations. Vodafone claims it will reach about 80% by the end of 1995. Industry sources say Vodafone has around 500 base stations.
- Coverage maps for each carrier should be available from the retailer of your



If you find you can't use your phone where your network's coverage map says — complain.

ANALOGUE TARIFF PLANS

Plan	Recommended by carrier for	Initial connection fee	Monthly access ch
OPTUS			
FreedomPlan	Less than one two-minute call per day	$45	$10
SecurityPlan	One to two two-minute calls per day	$45	$20
BusinessPlan *(A)*	More than two two-minute calls per day	$45	$35 *(A)*
PowerPlan 120 *(B)*	More than four two-minute calls per day	$45	$120 *(B)*
PowerPlan 240 *(C)*	More than 10 two-minute calls per day	$45	$240 *(C)*
TELSTRA			
Flexi-Plan 10	Low-volume users	$45	$10
Flexi-Plan 20	Low-volume users	$45	$20
Flexi-Plan Standard	Moderate users	$45	$35
Flexi-Plan 80	Regular users	$45	$80
Flexi-Plan 130	High-volume users	$45	$130
Flexi-Plan 240	High-volume users	$45	$240

(A) 10% off after $20 worth of calls, 20% off after $40 worth of calls.
(B) Includes $110 prepaid calls per month, then 20% off quoted rates.
(C) Includes $280 worth of prepaid calls per month, then 20% off quoted rates.

DIGITAL TARIFF PLANS

Plan	Recommended by carrier for	Initial connection fee	Monthly access char
OPTUS			
FreestylePlan *(D)*	Most calls made off-peak or at weekends	$65	$20 *(D)*
MetroPlan *(E)*	People who will be using the phone within their 'Metro Zone' for the majority of calls. *(I)*	$65	$25 *(E)*
NationalPlan *(E)*	People who travel outside their 'Metro Zone'. *(J)*	$65	$35 *(E)*
PowerPlan 120 *(F)*	More than four calls per day	$65	$120 *(F)*
PowerPlan 240 *(G)*	More than 10 calls per day	$65	$240 *(G)*
TELSTRA			
Flexi-Plan 20	Low-volume users	$65	$20
Flexi-Plan Standard	Moderate users	$65	$35
Flexi-Plan 80	Regular users	$65	$80
Flexi-Plan 130	High-volume users	$65	$130
Flexi-Plan 240	High-volume users	$65	$240
VODAC*			
Standard Plan	Less than one two-minute call per day	$65	$38
Premier Plan *(H)*	One two-minute call per day	$65	$38
VIP Plan	Four two-minute calls per day	$65	$52
Lifestyle Plan	Six two-minute calls per day	$65	$66

* Vodac is Vodafone's largest service provider.
(D) Up to $52 worth of local weekend calls per month free, and then 10 cents for every 30 seconds. Several types of call are excluded, including calls to other mobile phones.
(E) 10% off after $20 worth of calls, 20% off after $40 worth of calls each month.
(F) Includes $110 prepaid calls per month, then 20% off quoted rates.

l charge per 30 seconds ($) cal (under 165 km) ak (7 am to 7 pm Mon to Sat)	Local (under 165 km) Off-peak (all other times)	Long-distance (over 165 km) Peak (7 am to 7 pm Mon to Sat)	Long-distance (over 165 km) Off-peak (all other times)
0	0.10	0.90	0.15
0	0.10	0.60	0.15
0	0.10	0.30	0.15
0	0.10	0.30	0.15
0	0.10	0.30	0.15

cal (under 165 km) ak (7 am to 7 pm Mon to Sat)		Local (under 165 km) Off-peak (all other times)		Long-distance (over 165 km) Peak (7 am to 7 pm Mon to Sat)		Long-distance (over 165 km) Off-peak (all other times)	
rst 30 secs	Subsequent 30 secs	First 30 secs	Subsequent 30 secs	First 30 secs	Subsequent 30 secs	First 30 secs	Subsequent 30 secs
57	0.57	0.145	0.095	1.20	0.90	0.20	0.15
58	0.38	0.145	0.095	0.80	0.60	0.20	0.15
29	0.19	0.145	0.095	0.40	0.30	0.20	0.15

rst $52 of calls are charged at standard rate and are included in $80 monthly access charge. Any unused portion is forfeit.
alls in excess of $52 are charged at a 5% discount off the Flexi-Plan Standard rate.

rst $125 of calls are charged at standard rate and are included in $130 monthly access charge. Any unused portion is forfeit.
alls in excess of $125 are charged at a 5% discount off the Flexi-Plan Standard rate.

he $240 monthly access charge covers $285 worth of calls. Any unused portion is forfeit.
alls in excess of $285 are charged at a 5% discount off the Flexi-Plan Standard rate.

all charge per 30 seconds ($) ocal (under 165 km) eak (7 am to 7 pm Mon to Sat)	Local (under 165 km) Off-peak (all other times)	Long-distance (over 165 km) Peak (7 am to 7 pm Mon to Sat)	Long-distance (over 165 km) Off peak (all other times)
.60	0.10	0.90	0.15
.20	0.10	0.30	0.15
.20	0.10	0.30	0.15
.20	0.10	0.30	0.15
.20	0.10	0.30	0.15

Local (under 165 km) Peak (7 am to 7 pm Mon to Sat)		Local (under 165 km) Off-peak (all other times)		Long-distance (over 165 km) Peak (7 am to 7 pm Mon to Sat)		Long-distance (over 165 km) Off peak (all other times)	
First 30 secs	Subsequent 30 secs	First 30 secs	Subsequent 30 secs	First 30 secs	Subsequent 30 secs	First 30 secs	Subsequent 30 secs
0.58	0.38	0.145	0.095	0.80	0.60	0.20	0.15
0.29	0.19	0.145	0.095	0.40	0.30	0.20	0.15

First $52 of calls are charged at Flexi-Plan Standard rate and are included in $80 monthly access charge. Any unused portion is forfeit.
Calls in excess of $52 are charged at a 5% discount off the Flexi-Plan Standard rate.

First $125 of calls are charged at Flexi-Plan Standard rate and are included in $130 monthly access charge. Any unused portion is forfeit.
Calls in excess of $125 are charged at a 5% discount off the Flexi-Plan Standard rate.

The $240 monthly access charge covers $285 worth of calls. Any unused portion is forfeit.
Calls in excess of $285 are charged at a 5% discount off the Flexi-Plan Standard rate.

Peak (7 am to 8.30 pm Mon to Sat) *(K)*	Off-peak (8.30 pm to 11 pm Mon to Sat and all day Sunday) *(K)*	Super off-peak (11 pm to 7 am Mon to Sat) *(K)*
0.22	0.11	0.09
0.22	0.11	0.09
0.18	0.09	0.08
0.16	0.08	0.07

(G) Includes $280 worth of prepaid calls per month, then 20% off quoted rates.

(H) Minimum of $22 must be spent on phone calls each month.

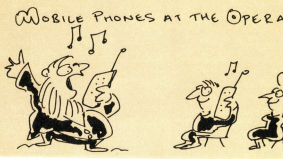
(I) See Optus Mobile Digital coverage maps for your 'Metro Zone'. Calls made outside your 'Metro Zone' are charged at twice the rate.

(J) All calls (both inside and outside your 'Metro Zone') are charged at the same rate.

(K) Most Vodac plans don't discriminate between local and interstate calls; both are charged at the same rates. There is an initial connection fee of 10 cents per call at all times, or 20 cents if it is a call to a mobile phone on another network.

MOBILE PHONE ETIQUETTE

It's important to consider the rights and convenience of other people when using a mobile phone. The Telecommunications Industry Ombudsman recently published a brochure, *The etiquette of mobile phones*. Here's a summary:



- Don't, if at all possible, make or receive calls:
  — At the cinema, concerts, theatre, opera, ballet or tennis, out of consideration for others in the audience as well as the performers/players.
  — In hospitals, as many hospitals contain sensitive electronic equipment susceptible to interference from mobile phones.
  — Whilst on a plane, as it could interfere with navigation systems.
  — In a restaurant, out of consideration for other diners.
- Mobile phones use the latest in telecommunications technology, so speak normally — you shouldn't have to shout.
- Answer your mobile as quickly as possible.
- Respect the privacy of others when making or receiving calls. It's easy to intrude on other people's personal space without even realising you've done so.

handset. Research carried out by communications engineer and industry commentator, Phil Bertolus, showed that advertised coverage did not always match up to real coverage. "At best the coverage maps can be considered indicative," he said. If you find you can't use the phone in an area you were told it would work, ask for a refund.

- Whether you're buying a digital or analogue phone, make sure you select the most appropriate tariff plan for your anticipated usage pattern. All mobile phone calls are charged on a time basis. In general, higher monthly access charges mean cheaper call costs; lower monthly access charges mean higher call costs (see the *Analogue* and *Digital tariff plans* tables on pages 30 and 31).

In the case of analogue phones the initial connection fee and monthly access charges are more or less identical for Telstra and Optus. If you usually make short phone calls, the Optus network is cheaper, as Telstra charges more for the first 30 seconds of a phone call, and slightly less than Optus for each subsequent 30 seconds. If you think you'll regularly make calls lasting more than four minutes, Telstra offers a slightly better deal.

- Vodafone operates a little differently from Optus and Telstra, in that it doesn't actually sell air time to customers. Vodafone sells blocks of air time to other service providers, which then onsell it to customers. Billing and support are carried out by the service providers. Vodac is Vodafone's largest service provider.

BUYING ON A PLAN

To entice people to go digital, Optus and Telstra, as well as Vodafone's service providers, offer special deals giving you a cheap handset and access to a particular network for a minimum period as part of a package. For many people these plans offer an ideal way to buy a digital mobile phone, but they aren't always as cheap as they first seem:

- You're bound by contract to stay with the carrier through which you bought the phone for a certain period — usually 12 months. (See *A tale of three plans*, right, to get an idea of the potential penalties.)
- There is a monthly access fee, and in some cases a minimum monthly call charge. A particular package may not be worth buying unless you intend making lots of phone calls.
- One contract we saw very much favoured the carrier. For example, it gives the carrier the right to obtain and give information about your credit affairs, and requires that you continue paying instalments even if the handset is "stolen, lost, damaged, or does not operate". Make sure you read any contract very carefully before you sign it.

WHAT TO DO IF YOU'VE GOT A PROBLEM

First, approach the company which sold you the phone. If there's a problem with the handset, the business must fulfil its obligation under the Trade Practices Act or state law to repair or replace it. Many problems can be sorted out this way.

If you're still not satisfied with the phone or network, contact your state consumer affairs agency or the ACCC (Australian Competition and Consumer Commission). If they can't help, complaints can be taken to the Telecommunications Industry Ombudsman.

CONTACT PHONE NUMBERS

- **Network help desks:**
  Telstra MobileNet: 018 018 111
  Optus Mobile: 1800 555 555
  Vodafone Mobile: 008 651 008
- **Telecommunications Industry Ombudsman:** phone 1800 06 2058, fax 1800 630 614
- ACCC: (06) 264 1166

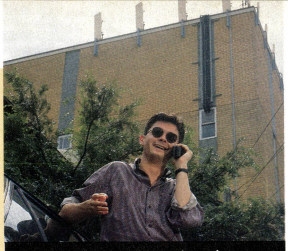
WHAT TO LOOK FOR

- For low-volume and emergency users, analogue phones are still a viable option — handsets are cheap and there's still another four years before the analogue network is shut down.
- Make sure the tariff plan you select is most appropriate for your anticipated usage pattern. There's no point paying higher monthly access charges for lower call charges if you rarely call anyone.
- Check that coverage is available in your area from the carrier you intend to sign up with. The retailer should have coverage maps.
- If you're buying a digital phone as part of a plan, make sure you know the full cost of the phone over the term of the contract.
- Read any contract you sign very carefully, and be aware of any fees or penalties you have to pay if you don't honour it.

HOW DO MOBILE PHONES WORK?

While digital mobile phones use a more advanced technology than analogue phones, the handsets in both systems are linked to the standard telephone network by a series of base stations, which transmit and receive the radio signals used by the mobile phones. Each base station's coverage area is called a 'cell' and these cells are arranged to overlap slightly.

When you switch on a mobile phone, it connects with whichever base station offers the strongest signal. When you move around you may leave one base station's area of coverage and enter another's. The network will detect this and automatically switch your call to the new base station, hopefully without interruption. Dropouts can occur if the new base station is already working to capacity or you enter an area not covered by any cell.



Mobile phone coverage is increasing as 'base stations' spread over the country.

A TALE OF THREE PLANS

It would be impossible for us to survey and analyse the dozens of mobile phone packages released every month. Instead, to give you an idea of the costs involved, we looked at three typical packages advertised late last year. Packages make it cheaper for you to buy a handset, though it does involve committing yourself to one carrier for at least 12 months.

While the initial purchase price of the handsets we looked at is reasonable, by the time you've honoured the contract, you'll have paid out several hundred dollars — not counting any call charges in two cases.

On the other hand, all three phones are cheaper to buy on a plan than they are to buy outright — and you get access to the network as part of the package. If you buy the handset by itself, you have to pay extra for network access. The calculations do not take into account extra phone calls, only those included as part of the plan (if any).

■ **Optus:** The price of the Nokia 2012 is $349 as part of Optus's plan, with a monthly access charge of $20. Calls are more expensive at 60 cents for a 30-second local peak-hour call, but you do get up to $52 worth of free local weekend calls per month. Total cost of plan: $654.

■ **Telstra:** Telstra's Motorola Flare plan offers a cheaper call rate (29 cents for a local peak-hour call, falling to 19 cents for each subsequent 30 seconds), but has higher monthly access charges than Optus at $35 per month. There is also a $600 penalty if you stop using the service or switch carriers. Total cost of plan: $789.

■ **Vodac:** Vodac's Motorola 3300 plan is designed for high-volume users who make at least $22 worth of calls per month. The handset only costs $59, but monthly access charges are slightly higher than for the other two plans ($38) and there's a minimum monthly call charge of $22. The cost of a 30-second local call during peak time is 32 cents. Total cost of plan: $844.

SAMPLE OF DIGITAL PHONE PLANS ADVERTISED IN LATE 1995

	OPTUS	TELSTRA	VODAC*
Phone	Freestyle (Nokia 2012)	Motorola Flare	Motorola 3300
Recommended retail price (phone only)	$899	$899	$659
Plan	FreestylePlan	Flexi-Plan Standard	Standard Plan
Carrier recommends for	Off-peak and weekend calls	Medium users	Less than one two-minute call per day
Cost of handset	$349	$369	$59
Connection charge	$65	*(B)*	$65
Monthly access charges	$20	$35	$38
Length of contract	12 months	12 months	12 months
Total access charges	$240	$420	$456
Minimum monthly calls	not applicable	not applicable	$22
Total minimum calls	not applicable	not applicable	$264
Cost of 30-second local call during peak time	$0.60 *(A)*	$0.29 (then $0.19)	$0.22 + 10 cent connection charge
Penalty for switching carriers or discontinuing plan	Monthly access charges for remaining months of contract	$600	Monthly access charges and minimum call fees for remaining months of contract
Total minimum cost to complete contract	**$654**	**$789**	**$844**

* Vodac is Vodafone's largest service provider.

(A) Up to $52 worth of free local weekend calls per month, and then 10 cents for every 30 seconds (with some exclusions — for example, calls to other mobile phones).

(B) This was offered free as part of the plan we saw.

The digital advantage

With the analogue mobile phone network scheduled to be shut down by the year 2000, digital mobile phones are starting to look more attractive. But what's so special about digital anyway?

TELSTRA'S ANALOGUE MOBILE network has been serving Australia since 1987 — unfortunately it's become congested and as a result it's sometimes difficult to get a call through. It's currently being replaced by three competing digital networks being built by Telstra, Optus and Vodafone, which should overcome this problem.

Digital mobile networks, as the name implies, are based around digital technology. When you make a call from a digital mobile phone, your voice is coded into computer data, which is then transmitted, and decoded at the other end.

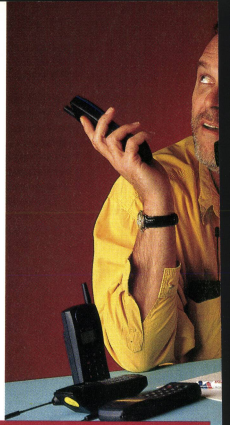
While the analogue network still offers slightly better coverage (meaning that analogue handsets can be used in more places around Australia), Optus and Telstra (the two biggest 'carriers' or service providers of networks) claim that the coverage of their digital networks is catching up. Vodafone also says it is improving the coverage of its network (see *Buying a mobile phone* on page 29). The carriers say digital mobile phones are superior to analogue phones, because they:

- Are less prone to interference and noisy connections.
- Offer improved protection from other people listening in on your call.
- Provide better reliability, with fewer dropouts and crossed connections.
- Offer a wider range of features and functions (see *Features* on page 39).

At the moment analogue phones are still cheaper, so if you just want a mobile phone to give to your children for some peace of mind when they're out, a cheap analogue model is probably perfectly adequate till the analogue network closes down.

The Australian digital mobile phone system complies with the Global System for Mobile Communications (GSM) — a standard used in Europe and parts of Asia. A European initiative, the GSM standard was designed to provide mobile phones with common operating formats, allowing them to be used in different countries.

When you sign up with a carrier — the company which allows you to connect your phone ('handset') to a network — you will receive a 'subscriber identity module' (SIM) card and a personal identification number (PIN). The SIM card sits permanently in the phone and has a small computer chip, which contains your phone number and identification code. Your SIM card can be used with different handsets and any calls made are charged to your account.



Deciding between analogue and digital phones is only the beginning of finding the phone that suits your needs.

Phones use SIM cards in different ways — with some you slide in the whole card, with others you pop out the computer chip.

What to look for

- If you're likely to spend a long time each day talking on your phone, check that it comes with a high-capacity battery, or buy one separately.
- Make sure the phone has the features you want, but don't pay extra for ones you don't need. For example, if you're a business user, it may be important to you to be able to use a modem to connect your computer to the phone network via your handset, while for other people this could be a wasted extra.
- It's usually cheaper to buy the handset as part of a plan, but make sure the plan is designed for your usage patterns. Otherwise you might find yourself paying more than necessary (see *Buying a mobile phone* on page 29).
- Hold the phone in your hand to make sure it's comfortable — how do the size and shape fit your hand, can you dial easily while holding the phone, etc?
- Is the keypad backlit for use at night?
- Think about where you'll be carrying the phone. Will it fit in your bag or pocket? Will it feel comfortable carried on your belt?
- If you're worried about the phone's 'ring' being too loud, look at what silent ring facilities are available. Some phones have a flashing light which can be used to indicate a call is coming in, while other models can vibrate.
- Some phones require the battery to be removed during charging, which means you can't use the phone unless you have a fully charged spare.
- A 'discharge' function is very useful as it allows you to completely discharge the battery before recharging — this promotes longer battery life (see *Looking after your battery* on page 38).
- We found desktop chargers much easier to use than having to plug a power supply directly into the phone to recharge the battery.

There's a small amount of computer memory available on each SIM card which can be used to store phone numbers or short text messages (see *Short message service* on page 38).

The SIM card also allows you to use your phone, or another phone if you have your SIM card with you, in other GSM countries where your carrier has reciprocal agreements with local carriers. This means you can take your phone to any of these countries and be able to use it. Any calls you make will be billed to your Australian account.

Security features are built into the phones to help prevent unauthorised phone calls. Both the SIM card and the handset have their own codes, which can be used to limit access to certain functions. For example, the phones can be set up to require a password every time they're switched on (this feature can be turned on and off as you wish).

OUR TEST

We bought nine phones, six of which are also rebadged (sold under a different brand name). We checked that the 're-badged' handsets were the same as those we tested and took into account any differences. All up we are able to report on 18 phones.

Although, as always, we purchased the phones to be tested as an ordinary consumer would, in order to conduct our tests we borrowed SIM cards from Telstra, Optus, and Vodafone — so we could test every handset on each network. In addition, we had access to Telstra's Parramatta (NSW) testing laboratory, where we were able to conduct our battery tests. So our thanks to all three for their assistance and co-operation.

To make it harder for the phones we simulated a low-signal area for each of the networks in our labs. Even in this tough test all the phones did well.

However, we did find some problems which you may also experience if you use your phone in a low-signal area. They include:

- **Buzzing:** During our tests we noticed a buzz in some handsets at various times. The noise was not severe enough to interfere with a conversation.
- **'Banjoing':** The incoming call sounds distorted because the handset's computer is trying to reconstruct missing sound information.
- **Silence:** A distorted signal is muted rather than reconstructed.

BATTERIES

Most of the mobile phones in our test came with rechargeable nickel-cadmium batteries, though four had the newer nickel metal hydride batteries. Our tests confirmed that:

- Larger-capacity batteries last longer than smaller ones.
- The newer nickel metal hydride batteries last longer than similarly sized nickel-cadmium batteries.

We've been told that a new type of lithium ion battery, which is only just becoming available, provides 50% more charge time than an equivalent nickel metal hydride battery. However, there were none of these in our test.

With some phones (for example the ERICSSON GH 337 pictured here) you have to remove the battery to recharge it.

WHAT TO BUY

When we bought the phones for our test, we paid the full retail price, which at the time was often more than $1000. Handsets are much cheaper if you buy them as part of a plan. (*Buying a mobile phone* on page 29 explains what plans usually cover and how to choose one.) Even if you're committed to a specific tariff (call cost) and monthly access fees for 12 months, a plan is cheaper than buying the phone outright, and then paying monthly network access charges and call costs on top.

We haven't listed prices in the table on pages 38–39 or the *What to buy* lists because carriers and service providers are always offering new plans and prices vary greatly, even from week to week, so the actual retail price of a phone is generally irrelevant.

To help you find the right phone, we've created two scenarios — one for most users and one for heavy users. Once you've matched yourself to one of these scenarios and chosen a phone, shop around for a plan that offers the best deal.

MOST USERS

The top 13 phones in the table (see page 39) only ranged from 84% to 90% in their overall score, and were all very good for reception and transmission. They could all connect and maintain a call even in low-signal conditions, and didn't suffer significantly from interference or poor quality. So the major factors left to balance in your choice are talk time (battery life) and ease of use.

If you're not a heavy user, ease of use might outweigh talk time — and the top 13 in the table all offer at least two hours of use before they need recharging. The best phones for ease of use, combined with good reception and reasonable talk times, were:

OPTUS Freestyle
ERICSSON GF 337
NOKIA 2010
NOKIA 2110
OPTUS 2110
ORBITEL 902

HEAVY USERS

If you think you'll be spending a long time every day talking on your mobile phone, go for one with a battery that gives a long talk time before it needs recharging. Most of the phones in the test could be used for at least two hours (a score of 75%), but three stood out as providing close to three hours of talk time. Of these, the **OPTUS Flare** had the equal lowest score for ease of use — by quite a big margin — so we left it out of the following *What to buy* list.

ERICSSON 218
MOTOROLA International 8200

Profiles

The top phones are profiled in rank order, alphabetically when equal. Features mentioned in profiles are explained overleaf.

OPTUS Freestyle

Good points
- Very easy to use.
- Good talk time.
- Comes with instructional video.

Bad points
- No call hold and no call waiting.

ERICSSON GF 337

Good points
- Compact and easy to use.
- Good talk time.
- Flashing green light on top of handset makes it easier to locate in darkness.
- Has a flip lid to protect the keypad.

Bad points
- Battery must be removed for charging.

ERICSSON GH 218

Good points
- Very good talk time.

Bad points
- Battery must be removed for charging.
- Non-retractable antenna gets in the way.
- Hard to read display.
- Longest battery charge time.

NOKIA 2010

Good points
- Good talk time.
- Easy to use

Bad points
- No call hold and no call waiting.

NOKIA 2110
OPTUS 2110

Good points
- Very easy to use, with good menu system.
- Quick battery charge time.
- Reasonable talk time.
- Can handle fax/data (with suitable adaptor).
- Equal best reception score.

Bad points
- None to mention.

Ericsson emergency problems

Users of some Ericsson GH 337, GF 337 and GH 218 mobile phones bought last year may have problems ringing the '000' emergency number.

A fault with the phone's software means four zeros (0000) must be dialled before an emergency call gets through.

Ericsson has promised to fix all faulty phones, and has asked people who think they are affected not to dial 000 to test their phone, but instead to call its customer service line on 1800 033 700.

ERICSSON GH 337

Good points

- Compact.
- Good talk time.
- Flashing green light on top of handset makes it easier to locate in darkness.

Bad points

- Battery must be removed for charging.

MOTOROLA International 8200

Good points

- Equal best talk time with larger, high-capacity battery.
- Flip lid to protect keypad.
- Came with two batteries.
- Vibrates to alert user of incoming calls (if preferred).
- Can handle fax/data (with suitable adaptor).
- Good battery charge time with a smaller battery.

Bad points

- With larger, high-capacity battery, phone is bulky and takes 90 minutes to charge.

OPTUS 337

Good points

- Compact.
- Good talk time.
- Flashing green light on top of handset, makes it easier to locate in darkness.

Bad points

- Battery must be removed for charging.

ORBITEL 902

Good points

- Equal fastest battery charge time.
- Very easy to use — but see 'Bad points' below.
- Reasonable talk time.
- Battery charge indicator.

Bad points

- No keypad lock.
- Cumbersome to make and receive phone calls with just one hand because of placement of answer and hang-up buttons.

OPTUS Flare

Good points

- Equal best talk time.
- Can handle fax/data (with suitable adaptor).
- Battery charge indicator.

Bad points

- Allows only three-letter names in phone directory.
- Some keypad buttons hard to press.
- Some features are difficult to use — equal worst score for ease of use.

Digital mobile phones

Brand/model (in rank order)	Manufacturer/ distributor	Origin	Warranty (phone/ battery, months)	Dimensions (HxWxD, mm)	Weight (g)	1 Keypad lock	2 Call waiting	3 Call hold	4 Phone number memories	5 Conference calls	L n r
OPTUS Freestyle	Nokia	Germany	12 / 3	186 x 55 x 35	314	✓			99		1
ERICSSON GF 337	Ericsson	Sweden	12 / 3	166 x 49 x 29	218	✓	✓	✓	45		1
ERICSSON GH 218	Ericsson	Sweden	12 / 3	218 x 50 x 38	255	✓	✓	✓	45		
NOKIA 2010	Nokia	Germany	12 / 3	186 x 55 x 35	314	✓			99		1
NOKIA 2110 *(A)*	Nokia	Germany	12 / 3	165 x 57 x 25	239	✓	✓	✓	125		1
OPTUS 2110 *(B)*	Nokia	Finland	12 / 3	165 x 57 x 25	239	✓	✓	✓	125		1
ERICSSON GH 337	Ericsson	Sweden	12 / 3	166 x 49 x 29	218	✓	✓	✓	45		1
MOTOROLA International 8200	Motorola	UK	12 /12	155 x 60 x 29	244	✓	✓	✓	100		1
OPTUS 337	Ericsson	Sweden	12 / 3	166 x 49 x 29	218	✓	✓	✓	45		1
ORBITEL 902 *(C)*	Orbitel	UK	12 / 3	195 x 62 x 26	294		✓	✓	100		5
OPTUS Flare	Motorola	Germany	12 /12	160 x 60 x 40	272	✓	✓	✓	100	✓	1
OPTUS PR 747	Nokia	Germany	12 / 3	165 x 55 x 24	239	✓	✓	✓	125		1
PHILIPS PR 747	Nokia	Germany	12 / 3	165 x 55 x 24	239	✓	✓	✓	125		1
OPTUS 8200 *(C)*	Motorola	UK	12 / 12	155 x 60 x 29	244	✓	✓	✓	100		1
ALCATEL HC400	Alcatel	France	12 / 3	196 x 60 x 21	254				45		1
OPTUS S3 Plus *(D)*	Siemens	Germany	12 / 3	176 x 63 x 33	278	✓	✓	✓	45	✓	5
SIEMENS S3 Plus *(D)*	Siemens	Germany	12 / 3	176 x 63 x 33	278	✓	✓	✓	45	✓	5
MOTOROLA Flare	Motorola	Germany	12 / 12	160 x 60 x 40	272	✓	✓	✓	100	✓	1

(A) Discontinued in September 1995, though it may still be available in some stores.
(B) Replaced by the Optus 2110e, which Optus says is similar.
(C) Discontinued in late 1995, though it may still be available in some stores.
(D) Discontinued.
(E) Number only remembered for 40 minutes.
(F) Larger-capacity battery takes 1 hour 30 minutes to charge.

Looking after your battery

Many people throw their mobile-phone batteries on charge at the end of each day. This seemingly harmless habit can lead to problems.

If you're using nickel-cadmium batteries — the most common type used with mobile phones — it's important that you fully charge the battery and then use it until it is fully discharged.

If a nickel-cadmium battery is charged again when it has only been lightly used, it tends to remember this usage pattern (this is known as the 'memory effect'). It will then be unable to deliver its full capacity, and the stand-by and talk times will be shortened.

However, the memory effect can often be overcome by 'deep discharging' the battery three or four times using a charger that has a special 'deep discharge' facility. None of the phones we tested came with this type of charger as standard. With care, nickel-cadmium batteries can be recharged up to 500 times.

GSM features

The following features are part of the GSM standard (see page 34 for more information), so you'll have them regardless of which network and which phone you choose.

■ **Short message service (SMS):** A newer service which allows callers to your phone to leave a message with an operator. The operator then sends a text message to your phone, where it appears on the display.

■ **Indication of arrival of a 'short message'.**

■ **DTMF tone signalling:** DTMF (dual-tone multi-frequency) allows you to send special tones which enable you to make use of services (such as home banking) or retrieve messages remotely from DTMF answering machines.

■ **Preferred network list management:** If you're in a foreign country where your carrier has a reciprocal agreement with a number of local carriers, this function allows you to select which foreign network you prefer.

■ **International one-key access:** Automatically adds the international network access code when you're dialling an overseas number.

■ **Call diversion:** Allows you to divert incoming calls to another number.

■ **Call barring:** Allows you to stop certain types of call from being made or received. For example, you can bar all outgoing international calls.

■ **'Call in progress' display:** Indicates on the display that you are making a call.

8	9	10	11	12	13	14	
Last number auto redial	Fax/data	Battery charge time (mins)	Talk time score (%)	Reception score (%)	Ease of use score (%)	Overall score (%)	Brand/model (in rank order)
✓		70	85	93	90	90	**OPTUS** Freestyle
✓		80	85	95	84	89	**ERICSSON** GF 337
		120	93	93	76	88	**ERICSSON** GH 218
✓		70	85	93	83	88	**NOKIA** 2010
✓	✓	60	75	96	90	88	**NOKIA** 2110 *(A)*
✓	✓	60	75	96	90	88	**OPTUS** 2110 *(B)*
✓		80	85	95	77	87	**ERICSSON** GH 337
✓	✓	60 *(E)*	100	88	74	87	**MOTOROLA** International 8200
✓		80	85	95	77	87	**OPTUS** 337
✓		50	75	92	90	86	**ORBITEL** 902 *(C)*
✓	✓	90	100	92	62	85	**OPTUS** Flare
✓	✓	60	75	96	76	84	**OPTUS** PR 747
✓	✓	60	75	96	76	84	**PHILIPS** PR 747
✓	✓	60 *(F)*	77	88	74	81	**OPTUS** 8200 *(C)*
		50	63	85	80	77	**ALCATEL** HC400
✓	✓	60	73	79	76	76	**OPTUS** S3 Plus *(D)*
✓	✓	60	73	79	76	76	**SIEMENS** S3 Plus *(D)*
✓	✓	90	64	92	62	75	**MOTOROLA** Flare

FEATURES

You can do much more with a digital mobile phone than just make and receive basic calls. Here's a round-up of the features you're likely to find most useful.

1 Keypad lock

Stops unintentional operation of the keypad when it's bumped or jostled in a bag. Usually turned on and off by pressing two buttons at once.

2 Call waiting

If someone tries to phone you while you're already on another call, this feature will notify you that another call has come through and is waiting.

3 Call hold

This allows you to place your current call on hold if someone else tries to call you.

4 Phone number memories

Total number of phone numbers that can be stored in the phone's memory. Additional numbers can generally be stored on the SIM card's memory as well.

5 Conference calls

Allows multi-party phone conversations to take place.

6 Last number redial

Recent numbers dialed are stored in memory, which makes it easy to redial recently used numbers. The number given is how many phone numbers are remembered.

7 Personalised call restrictions

Allows you to program your phone to restrict certain types of incoming and outgoing calls — such as those with numbers more than a certain number of digits long. While similar to call barring (see *GSM features*, opposite page), these call restrictions are a feature of the phone itself, rather than the network.

8 Last number auto redial

If the last number dialled is engaged, this function will redial until it either gets through or a certain time period has elapsed.

9 Fax/data

The phone can be connected with a special adaptor to a modem and used for fax and computer data transmission and reception.

10 Battery charge time

This is the figure quoted by the manufacturer as being the time taken to fully recharge the battery.

11 Talk time score

We tested the battery that came with handset to see how long it could power the phone during continuous transmission and reception, to establish a 'talk time'. This was converted to a score; 75% is two hours, 100% is three.

12 Reception/transmission score

The handsets were tested on each network in simulated low-signal conditions — the same conditions for each network, to make sure we were testing the phones, not the networks. Fifteen calls were made to and from each phone through each network. The calls were rated on whether there was a successful connection, whether the call was maintained for 30 seconds, and whether there were problems with interference or speech quality.

13 Ease of use score

Two people who are not regular mobile phone users, with the help of the instruction manuals, looked at how easy it was to program a phone number into each phone's memory and set up call diversion. We also considered other factors, such as whether the phone could be used while being charged and whether the keypad was backlit.

14 Overall score

The three performance scores were weighted as follows to reach an overall score:

- Talk time score: 30%
- Reception/transmission score: 40%
- Ease of use score: 30%

Electromagnetic fields

Are household appliances and high-voltage power lines bad for your health?

CAN LIVING NEAR HIGH-VOLTAGE power lines give you cancer? How about sitting for long hours at your computer or sleeping with your electric blanket on?

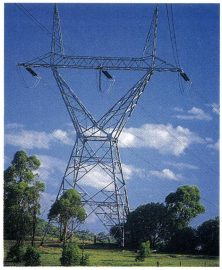
At the moment, we simply don't know what possible health effects long-term exposure to electromagnetic fields (EMFs) might have. There have been numerous studies over the past 25 years — some have suggested an association with certain types of cancer (mainly leukaemia, brain tumours and breast cancer), and possibly an increased risk of miscarriage, while others have found no such link.

Overall, effects attributed to EMFs have been small and difficult to reproduce (repeated studies help ensure results are correct), and scientists can't yet explain exactly how they might damage our health.

There is currently no consensus among scientists about the risks of EMFs, and further research is under way.

WHAT ARE EMFs?

Power lines, electrical wiring and appliances all produce electric and magnetic fields (the combined fields are called electromagnetic fields). In Australia, as in most countries, the power we use is



AC (alternating current), rather than DC (direct current). The electromagnetic fields associated with AC power alternate (their direction switches back and forth) with the current. These electric fields aren't considered a potential health problem but alternating magnetic fields are.

Magnetic fields are measured in units called gauss. According to current international guidelines, the maximum exposure for the general public should be 1000 mG over 24 hours. This is far higher than generally occurs, but it's accepted that at higher levels magnetic fields can directly affect our bodies. EMFs rapidly get weaker as you move further away from their source.

POWER LINES

Several studies have reported increased cancer risks for people (especially children) living close to high-voltage power lines, though scientists don't yet know whether EMFs or other factors are responsible for their findings.

At the moment there isn't enough evidence to justify moving house if you live close to a high-voltage power line. But if you're looking for a new place to live, you might want to choose somewhere that's a reasonable distance (around 200 m or so) from high-voltage lines.

HOUSEHOLD APPLIANCES

When it comes to EMFs produced by household appliances, the levels can be very high right next to an appliance, while it is being used, but beyond arm's reach the EMF strength drops off very quickly.

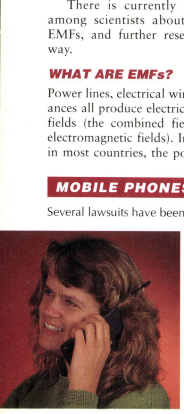
WHAT CAN YOU DO?

Even though it hasn't been proved that EMFs are bad for your health, it makes sense to be cautious and reduce your exposure as much as possible until more is known. Here are some simple things you can do.

- Stand back from appliances when in use (if that's practical), as magnetic fields drop off dramatically as you move away.
- Switch off your electric blanket before you get into bed — that's also a good fire safety precaution.
- Sleep with your clock radio at least an arm's length away.
- Sit at arm's length from your computer screen (or the back of the monitor) and discourage children from gluing themselves to computer games for hours on end.
- Turn off electrical appliances when you aren't using them. ❑

MOBILE PHONES

Several lawsuits have been lodged in the US against mobile phone manufacturers and suppliers by people claiming to have developed brain tumours as a result of using their mobile phones.



When in use, a mobile phone emits radio-frequency radiation from its antenna. Some scientists are concerned about the level that may enter your brain if you hold the antenna against your head while using your phone for prolonged periods. However, there is no proof as yet that this could lead to brain cancer.

As we don't yet know whether mobile phones could cause problems, it's a good idea to take some simple precautions. These include keeping the antenna as far away as possible from your head and limiting the number and duration of calls.

Cassette decks compared

Most people have a cassette deck, even if they only use it to record tapes to play in their car. What should you look for if yours needs replacing?

THIS WAS A TEST OF 'COMPONENT' cassette decks — the sort you buy separately and hook up to the rest of your hifi system. With components, you're not limited to one brand — different brands work fine together.

The mid-priced segment of the cassette deck market is the most popular, as is having two tape wells so you can do tape-to-tape recording. So we looked at all available models with dual wells and auto reverse that we could buy for between $499 and $599. This gave us 10 models to test.

WHICH ARE THE BEST?

We tested the decks for sound quality, ease of use, and handy features. The JVC, MARANTZ and SONY were equal top overall, with the PIONEER, TEAC and YAMAHA very close behind.

The YAMAHA was the best for sound quality, but most of the others did well too — the average user probably wouldn't be able to tell the difference.

In fact, all the models sounded pretty good — you may end up choosing a cassette deck on the basis of which features you want.

FEATURES

A few of the models tested have some pretty fancy features (like 'auto calibration' or 'synchro record muting'), but we

JVC TD-W318

SONY TC-WR565

MARANTZ SD535

PIONEER CT-W504R

YAMAHA KX-W382

TEAC W-800R

KENWOOD KX-W6070

ONKYO TA-RW211

DENON DRW-580

GRUNDIG Finearts CCF2

didn't include such relatively esoteric features in our ratings. All the models have most of the basic features you'd expect on a modern cassette deck. The main differences in the 'features' score in the table (starting on page 44) come down to the type of music search the decks have, and whether they have a microphone socket. All other features we looked for were present on all models in the *What to buy* list.

We've described the most useful features below, so decide which ones you're most likely to use and check which models have them before you buy.

WHAT'S DUBBING?

'Recording' and 'dubbing' are often used interchangeably. But, to avoid any confusion in this report, we are using 'dubbing' to signify one-touch recording, where you press one button and the cassette deck automatically sets all the parameters like record volume, balance and so on. In ordinary 'recording' you have to set all these parameters yourself.

If you're interested in a reasonable quality cassette deck like these, it's likely you'll want to record in both ways.

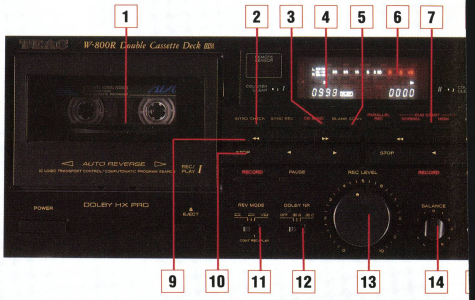
All the cassette decks we tested do tape-to-tape dubbing using a one-touch facility. Dubbing from CD to tape generally needs the same brand of cassette deck and CD player.

SAME BRAND: PROS AND CONS

Should you buy a deck that's the same brand or series as your existing hifi system? What are the advantages?

■ **'Synchro CD dubbing'.** For all decks except the **SONY**, you can do one-touch dubbing (usually referred to as 'synchro') from CD to tape if you have the same brand of CD player (the same series within the brand in the case of the **KENWOOD**). You can still record from well. They all allow high-speed as well as normal-speed dubbing. The dubbing function was easy to use on all models — the best were the **DENON**, **JVC** and **PIONEER**.

Features



1 **Dual wells:** All the models tested have two tape wells and a 'relay play' feature — when the tape in one well has played through, the tape in the other well automatically starts playing. On some models the tapes will alternate until the function is stopped manually; on other models they will play for a certain number of times only.

2 **Intro check:** Only the **TEAC** has this feature, which helps you to locate a specific song on a tape. It plays the first 15 seconds of a track, fast winds to the next track and plays the first 15 seconds of that track, and so on until the end of the tape or until stopped manually.

3 **Synchro CD dubbing:** Can be used with a CD player which is the same brand (and sometimes same model series) as your cassette deck to do one-touch taping from CDs (for more details, see *Same brand: pros and cons* above). All the models we tested, except the **SONY**, had this feature.

4 **Display / tape counter:** All the models have one or two four-digit tape counters. The models with the best displays have some sort of lit indication of which tape is in use (and whether it's playing or rewinding, etc), the Dolby type, and the auto reverse mode (see feature 11). The **TEAC** has the best display, closely followed by the **KENWOOD** and the **PIONEER**.

5 **Blank scan (or blank skip):** This lets you skip blank sections of tape that are more than 10 seconds long. Only the **KENWOOD**, **PIONEER** and **TEAC** have this feature.

6 **Signal level meter:** Helps you set the right recording volume. All the models have electronic peak-type meters. They were all good — but the more 'steps' (or increments) on the meter level the better, because this allows better fine tuning. A 'peak hold' feature also makes it easier to read and set the recording level. The **KENWOOD**, **MARANTZ** and **YAMAHA** have the best meters overall.

7 **Dubbing:** All the models tested have a one-touch tape-to-tape dubbing feature from the play well to the record

8 **Record mute:** This feature records a blank space on the tape (usually of four to five seconds, though it can be changed on some models). You use it during recording to ensure there's a gap between songs that's long enough to be found by the 'music search' function. All the models we tested had this feature.

9 **Music search:** This feature is like a CD player's 'skip' function. It fast-forwards to an unrecorded (blank) portion of tape — which is usually the gap between songs — and then begins playing

D to tape with different brands — you ust won't have the one-touch feature.

Remote control. Again, on all models xcept the **SONY**, using a same-brand ystem (same series for the **KENWOOD**) ives you a remote control capacity (us- ng a remote supplied with another part f the system). The **YAMAHA** is the only assette deck we tested which comes vith its own optional remote control which means you pay extra for it).

On the downside, the cassette deck hat's the same brand as your hifi sys- em may not have all the features you vant.

WHAT TO BUY

	JVC TD-W318	$500
equal	**MARANTZ** SD535	$560
	SONY TC-WR565	$480
	PIONEER CT-W504R	$500
equal	**TEAC** W-800R	$560
	YAMAHA KX-W382	$500
	KENWOOD KX-W6070	$500
equal	**DENON** DRW-580	$500
	ONKYO TA-RW211	$560

The **GRUNDIG** isn't in the *What to buy* list — although it's a reasonable performer, you can do better for the money.

lote: Brand name references apply nly to the models we tested.

16

e next song. All the players except the **ONKYO** d it, but on the **DENON** and **YAMAHA** the ature was limited — see footnotes *(C)* and *)* in the table overleaf for more details.

10 **Transport controls:** All the models tested have electronic 'transport' ontrols (for play, fast-forward, rewind and on), which require very little pressure to se — the **PIONEER** and **TEAC** were the asiest to use.

11 **Auto reverse mode:** All the models have auto reverse, which lets you play oth sides of the tape without having to hysically turn it over. However, the auto everse modes on the **DENON**, **GRUNDIG**, **NKYO** and the **SONY** won't play the entire ape just once, but several times — or forever.

12 **Dolby noise reduction:** All the models except the **GRUNDIG** have Dolby C (a new and improved type of noise reduction), as well as Dolby B. Dolby B and C aren't compatible, so be careful to match the Dolby setting on your deck with the tape you're playing or recording from.

13 **Record level control:** All the models have a record level control, which varies the recording volume. For best recording levels, the signal level meter on the counter should peak at no higher than 0 dB. Look in your unit's instruction manual for more information on optimum recording levels.

14 **Balance control:** The **KENWOOD**, **YAMAHA**, **TEAC** and **SONY** have a balance control, which lets you adjust the sound balance between the right and left speakers. Your hifi system will probably have a balance control anyway.

15 **Headphone socket:** All the models except the **ONKYO**, **MARANTZ** and **GRUNDIG** have a standard 6.5 mm socket for using stereo headphones. However, because there's no volume control on the decks, you have no control over sound levels.

16 **Microphone socket:** Only the **JVC**, **MARANTZ** and **TEAC** have a microphone socket, which lets you record sounds with a microphone. All three have a mix control to let you combine different signals to the cassette deck. This means you can record your voice over background music, for example.

What to look for

- For features that make a dual-well cassette deck easier to use, look for: large, well laid-out and clearly marked tape controls (preferably separate controls for each tape well); good-size viewing windows on the tape wells; a music search function that searches the whole tape; auto reverse; and two tape counters.
- If you plan to do a lot of recording, check the record level control. Is it designed so that it's easy to use? Take along a blank tape and try the record function. How easy is it both to begin and pause recording? Is the signal level meter easy to read? As a general rule, a meter with a range of -20 dB to 8 dB should have at least eight 'steps' or increments on the meter.
- Do you want to do a lot of recording from CDs? 'Synchro CD dubbing' — see page 42 — is easier, but you'll need to buy a cassette deck of the same brand (and sometimes series) as your CD player. The same applies if you want a remote control.
- The warranty varies considerably from brand to brand — ranging from five years on the **ONKYO** to one year on the **TEAC** for the models we tested. Because cassette decks are mechanically complex and can be prone to breakdown, a longer warranty is a bonus. It's also important to check whether the warranty covers the heads.

Dual-well cassette decks

	Brand/model (in rank order)	Manufacturer/ distributor	Origin	Target price ($)*	Warranty (years)	Dimensions HxWxD (mm)	1 Recording deck	2 Number of tape counters	3 Du tra co
	JVC TD-W318	Hagemeyer	Singapore	500	3	135 x 435 x 330	B	2	✓
equal	**MARANTZ** SD535	Marantz	Singapore	560	3	130 x 425 x 315	B	1	
	SONY TC-WR565	Sony	Malaysia	480	3	125 x 430 x 300	B	2	✓
	PIONEER CT-W504R	Pioneer	Malaysia	500	3	125 x 420 x 260	B (deck II)	2	✓
equal	**TEAC** W-800R *(A)*	Teac	Taiwan	560	1	145 x 435 x 285	A and/or B	2	✓
	YAMAHA KX-W382	Yamaha	Malaysia	500	2 *(B)*	125 x 435 x 280	A	1	
	KENWOOD KX-W6070	Kenwood	China	500	2	130 x 440 x 270	A and/or B	2	✓
equal	**DENON** DRW-580	AWA	China	500	2	135 x 435 x 265	B	2	✓
	ONKYO TA-RW211	Amber Technology	Malaysia	560	5	120 x 455 x 305	B	1	✓
	GRUNDIG Finearts CCF2	Southern Cross Electronics	Portugal	500	2	140 x 435 x 330	B	1	✓

* Prices shown are a good target to aim for when shopping around, based on nationwide checks in October 1995.
(A) Model number changed to W850R since we tested.
(B) Warranty includes heads.
(C) Only allows the selection of the track immediately after the current one, or return to the start of the current one; if you're at the start of the current track, you can select the track immediately before.
(D) Only allows the selection of the track immediately aft the current one, or return to the start of the current o

Whatever happened to digital?

One big advantage of cassettes is being able to record your own tapes at home, but they don't give you the sound quality of CDs. Two and half years ago CHOICE tested a range of new digital audio recording systems — systems which equal the sound quality of a compact disc — MiniDisc, digital audio tape (DAT) and digital compact cassette (DCC). Though high hopes were held for them, they haven't been as successful in the home audio market as other digital technologies like the compact disc, mainly because of their cost.

All three digital systems are currently more expensive than standard cassette decks (high-quality units can set you back many thousands). They're mainly used by professional musicians and other specialists, and are showing no signs of taking over in the home audio market.

At the moment, many more cassette decks are sold than MiniDisc, DAT or DCC players, and although the market in cassette decks isn't growing, they'll still be around for a while to come.

For more information on digital recording systems, read our article in the June 1993 issue of CHOICE.

MiniDisc, DAT and DCC systems — they're not about to take over the home audio market just yet.

5	6	7	8	9	10	11	
ophone et	**Dolby C**	**Intro check**	**Music search**	**Features score (%)**	**Ease of use score (%)**	**Sound quality score (%)**	**Overall score (%)**	**Brand/model**
	✓		✓	100	72	67	75	**JVC** TD-W318
	✓		✓	100	73	66	75	**MARANTZ** SD535 equal
	✓		✓	86	77	69	75	**SONY** TC-WR565
	✓		✓	86	81	65	74	**PIONEER** CT-W504R
	✓	✓	✓	100	79	60	74	**TEAC** W-800R *(A)* equal
	✓		✓ *(C)*	79	72	72	74	**YAMAHA** KX-W382
	✓		✓	86	81	60	71	**KENWOOD** KX-W6070
	✓		✓ *(D)*	79	78	61	70	**DENON** DRW-580 equal
	✓			71	77	65	70	**ONKYO** TA-RW211
			✓	71	69	59	65	**GRUNDIG** Finearts CCF2

1 Recording deck
Most models record on one tape deck only, though whether it's the right or left deck — 'deck A' or 'deck B' (called 'deck II' on the **PIONEER**) — varies between models. The **KENWOOD** and the **TEAC** can record to both decks, which allows 'relay recording' (when the tape in one well finishes recording, the tape in the other well automatically starts). In addition, the **TEAC** allows 'parallel recording' (recording to tapes in both wells simultaneously — which gives you two copies).

2 Number of tape counters
Models with two tape counters (and separate transport controls — see below), are easier to use — it's obvious at a glance which well or wells you're using, and what's happening to the tapes in them.

3 Dual transport controls
Transport controls are the controls for play, fast-forward, rewind and so on. A different set for each tape well makes the deck easier to use.

4 Microphone socket
See *Features* on page 43.

5 Dolby C
See *Features* on page 43.

6 Intro check
See *Features* on page 42.

7 Music search
See *Features* on page 42.

8 Features score
This is calculated on the basis of whether or not the deck has the features we considered important basics for a cassette deck: full auto stop (which stops the tape automatically when it's finished), music search, microphone socket, Dolby B and C, auto reverse and auto selection of tape type.

9 Ease of use score
This includes ease of using the controls (for playing, recording and dubbing), the clarity and usefulness of the instruction manual, and the clearness and quality of the display (including the meter).

10 Sound quality score
We tested the performance of the models with a series of standard audio tests and combined the individual scores to give the sound quality score. The tests included frequency response, distortion, channel separation, wow and flutter, drift and signal to noise ratio.

11 Overall score
The overall score is a combination of features, sound quality and ease of use, weighted as follows:
- Features score: 20%
- Ease of use score: 30%
- Sound quality score: 50%

WHAT DO YOU KNOW?

1 In computer industry jargon, 'multimedia' refers to special computer programs which use a number of different sights and sounds.
True or false?

2 A 'heat pump' is:
A) A pump that fills your car tyres with warm air.
B) A new feature in microwave ovens.
C) A refrigerative air conditioner.

3 The Prices Surveillance Authority and the Trade Practices Commission have merged. What's the name of the new consumer 'superbody'?
A) The Australian Consumer Claims Council.
B) The National Free Trade Authority.
C) The Australian Competition and Consumer Commission.

4 There is a universal flat fee for local mobile phone calls.
True or false?

5 It's best to charge mobile phone batteries before they're flat.
True or false?

6 How much fat does a reduced-fat margarine or butter contain?
A) 10 to 30%
B) 30 to 60%
C) 50 to 80%
D) 25%

7 If your neighbour has a dog that constantly barks, you have no legal recourse to deal with the situation.
True or false?

8 Electrolysis is:
A) A type of electric shock.
B) A disease.
C) A hair removal method.
D) A type of plant.

RECALLS AND BANS

If you find a recall or ban not on our list, please let us know. Companies often rent 008 or 1800 numbers for a couple of months after the recall is announced. If the number given is no longer operating, phone the manufacturer or retailer direct.

General Motors-Holden's Automotive has recalled some **HOLDEN VS SERIES VEHICLES WITH V6 ENGINES**, as the throttle cable retaining nut may come loose, preventing the throttle from closing fully and interfering with braking. Vehicles affected are all **VS Commodore Executive, Acclaim, 'S', Berlina, Calais, Statesman, Caprice** and **Utility** models fitted with a V6 engine and within the production serial number range L811209 to L876948. The production serial number is the last seven digits of the vehicle identification number, which is displayed on the lower left-hand corner of the windscreen and is listed in the vehicle owner's handbook. If your vehicle is affected by the recall, contact your Holden dealer to arrange to have the nut replaced free of charge. Don't use the cruise control (if your car has it) until the nut has been replaced. For further information, contact your Holden dealer or phone Holden customer assistance on 1800 632 826.

Toyota Motor Corporation Australia has recalled **T4 SERIES LEXCEN VEHICLES**, produced between May 3, 1995, and October 27, 1995, as the throttle cable adjusting nut may work loose, allowing the cable to hold the throttle partially open. Vehicles affected are in the series T4K19H, T4L19H, T4X19H, T4K35H and T4L35H, and have a vehicle identification number (VIN) within the range ST816613 to TT875944 (you can see the VIN from outside the car on the lower left-hand side of the windscreen). If you are the original owner of one of these vehicles, you'll be contacted by letter and requested to contact your Toyota dealer to have the fault corrected. If your car is fitted with cruise control, don't use the cruise control until the nut has been replaced (free of charge). For further information, contact your Toyota dealer or call Toyota customer assistance on 1800 800 394.

ANSWERS

1. True. 'Multimedia' refers to computer programs that are mostly interactive, which use a combination of text, still pictures, video, animation and sound.

2. C. Refrigerative air conditioners, also called heat pumps, work by transferring heat from inside your house to the outside, keeping it cool it in summer, and from the outside into your home to warm it during winter.

3. C. The Australian Competition and Consumer Commission (ACCC), which was launched on November 6, 1995, is responsible for ensuring competition across the Australian economy, including sectors not previously covered by the Trade Practices Commission.

4. False. Each of the three mobile phone carriers has its own system of charging for local phone calls.

5. False. Nickel-cadmium batteries suffer from 'memory' effect if they're not fully discharged before recharging. This can lead to shortened stand-by and talk times.

6. B. A reduced-fat spread contains between 30 and 60% fat — any less would make it a low-fat spread, which is currently unavailable on the Australian market.

7. False. Councils can take action under state Noise Control Acts, giving warnings or making orders — from confining the pet indoors, to soundproofing its kennel or even having it put down.

8. C. Electrolysis is a method of permanent hair removal, where a fine needle is inserted into the hair follicle and an electric current passed down it to destroy the root.

Rover Australia has recalled **NEW RANGE ROVER VEHICLES**, built between June 1994 and July 1995, as the engine idler pulley may fail, resulting in loss of power-assisted steering. Affected vehicles have a vehicle identification number (VIN) within the range 300190 to 319682. The VIN is displayed on the compliance plate on the left-hand pillar between the front and back door. All owners of affected vehicles registered with Rover Australia have been notified by letter. If you own an affected vehicle and haven't received a recall letter, contact your Rover dealer or your nearest Rover regional office — NSW (02) 685 5111; Victoria/Tasmania (03) 9690 0510; Queensland (07) 3834 4890; WA/SA/NT (09) 268 2571.

CSR has recalled **CSR 1 kg WHITE SUGAR** dated 24.08.95, as it may contain impurities. This recall does not apply to WA. The sugar has the number 3-13010 printed under the CSR address on the side panel and the date 24.08.95 embossed on the base of the pack. If you have a pack of the sugar, either throw the contents out and return the pack or return sugar and packet to Sugar Recall, PO Box 3070, Darlinghurst NSW 2010, for a refund (including postage). For further information, phone 1800 062 255.

Makita (Australia) has recalled **MAKITA MODEL 9037 DISC GRINDER 180 mm, 240 volt** and **MAKITA MODEL 9039 DISC GRINDER 230 mm, 240 volt**, as the spindle may break off during use and could cause injuries. (The spindle holds the abrasive disc, which is secured with flanges and a lock nut.) Return the machine to the Makita branch office in your state or territory or a Makita service agent — details of both can be found in the Yellow Pages under Power Tools (wholesalers/manufacturers and retail/repair). Modified spindles and locknuts will be fitted free of charge.

Safeway Supermarkets has recalled **6 PCS. ICE BALL/CUBE PACKS** (on sale since August 1995), as the product is hazardous to health if it ruptures (the liquid inside may be contaminated). Return the product to store of purchase for a refund. For further information call the product recall co-ordinator on (03) 9263 2413.

Hasbro Australia has recalled **PLAYSKOOL 1-2-3 HIGH CHAIRS (ITEM 107)**, as the plastic in their leg pivots (at the top of the legs) may crack during use and cause the chair to collapse. These chairs were sold only through Toys R Us stores between August and October 1995. Inspect the chair carefully for cracks. If you don't find any, contact Hasbro for a free 'prevention kit'. If you do find cracks, stop using the chair and return it to a Toys R Us store (or contact Hasbro) to arrange for a free replacement chair. There will be no further sales of this high chair until the prevention kit can be included with each chair. For further information, call Hasbro customer service on 1800 023 058 during office hours.

CHOICE

The magazine of the Australian Consumers' Association
(A non-profit company limited by guarantee) ACN 000 281 925

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Marketing statistics by GfK Marketing Services
Financial information supplied by Cannex

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ISSN 0009 496X Print post approved PP224733/00035
Wholly printed in Australia by Wilke Color, 37-49 Browns Road, Clayton 3168 in 1995 for the publisher, Australian Consumers' Association, 57 Carrington Road, Marrickville 2204